



**The Center for Advanced Studies
In Science, Math, and Technology
at Wheeler High School**



Specialized Math, Science & Technology Curriculum Guide

MATHEMATICS

COURSE #	COURSE /DESCRIPTION	GRADE	CREDIT	PREREQUISITE
	The following courses are for students who entered high school on or after August, 2008.			
27.0820011 Y	MATH II: This is the second course in the new high school series based on Georgia Performance Standards. Students will explore topics in Algebra (work with functions, simplify and operate with radical expressions, polynomials, and rational expressions, and solve equations involving radical, quadratic, and rational functions), Data Analysis and Probability (use basic laws of probability, determine the number of outcomes related to a given event, relate samples to a population, and explore variability of data), Geometry (investigate properties of geometric figures, use the mathematical language of argument and justification, discover, prove, and apply properties of polygons), solve problems using technology, and communicate mathematically.	9-10	1 UNIT	MATH I or Accelerated Math I
27.0830011 Y	MATH III: This is the third course in the new high school series based on Georgia Performance Standards. Students will explore topics in Algebra (work with functions, simplify and operate with radical expressions, polynomials, and rational expressions, and solve equations involving radical, quadratic, and rational functions), Data Analysis and Probability (use basic laws of probability, determine the number of outcomes related to a given event, relate samples to a population, and explore variability of data), Geometry (investigate properties of geometric figures, use the mathematical language of argument and justification, discover, prove, and apply properties of polygons), solve problems using technology, and communicate mathematically.	9-10	1 UNIT	Math II or Accelerated Math II
27.0840011 Y	MATH IV: This is a fourth year mathematics course designed to prepare students for calculus.			
27.0910003 Y	MAGNET ACCELERATED MATH 1: This is the first course in the sequence of mathematics courses designed to ensure that students are prepared to take higher level mathematics courses during their high school career, including Advanced Placement Calculus AB and BC. Students will explore all of the topics covered in Math 1 in addition to working with complex numbers, solving quadratic equations and inequalities, investigating piecewise and step functions, and working with the properties of circles and spheres.	9-10	1 UNIT	Math III or Accelerated Math III
27.0920003 Y	MAGNET ACCELERATED MATH 2: This is the second course in the new high school series based on Georgia Performance Standards for mathematically talented students. Students who complete Accelerated Math 1 in Middle School will automatically be placed in Accelerated Math 2. Topics include exponential functions, inverses of functions, graphs of polynomials of higher degrees, logarithmic functions, matrices, linear programming, special right triangles, conic sections, right triangle trigonometry, investigation of sample data and determination of the mean and standard of deviation, normal distribution, and comparing observational and experimental data.	9	1 UNIT	MATH 8 and Teacher Recommendation
27.0930003 Y	MAGNET ACCELERATED MATH III: This is the third in the sequence of math courses designed to ensure that students are prepared to take higher level math courses during their high school career, including AP Calculus AB, AP Calculus BC, and AP Statistics.	9-10	1 UNIT	ACCELERATED MATH 1 or Math II

	For students who entered high school prior to August, 2008.	10	1 UNIT	Accelerated Math II or Math III
27.0650007	ADVANCED ALGEBRA & TRIG Y: The major focus of study in this course is trigonometry, polar coordinates, sequences and series, conics, functions, statistics, and analytical geometry.	11-12	1 UNIT	Algebra II and Teacher Recommendation
27.0740095	AP STATISTICS Y: This course includes topics outlined by the College Board in which students learn to make decision based on real-world data. Students learn to plan studies and experiments using probability and simulation models to anticipate and predict patterns in data. Extensive use is made of calculators and computer software with statistical capabilities.	10-12	1 UNIT	Algebra II and Teacher Recommendation
27.0670099	MAGNET HONORS ANALYSIS Y: Analysis is a pre-calculus course that includes such topics as set theory, trigonometry, probability, exponential and logarithmic functions, statistics, sequences and series, vectors, complex numbers, and properties of functions. This course will also involve the use of technology as well as student projects and portfolios.	10-12	1 UNIT	Honors Alg. II or Alg. II and Adv/Trig., and Teacher Recommendation
27.0710007 (Non AP)	CALCULUS Y: This course includes algebraic relations, limits derivatives, integrals and their applications. These topics are studied at a more intuitive than formal level.	11-12	1 UNIT	Adv. Alg/Trig.
27.0720095	AP CALCULUS (AB): This course conforms to the Advanced Placement of the College Board and includes algebraic relations, limits, derivatives of algebraic and transcendental functions and applications of derivatives as well as basic integrations and applications and methods of integration.	11-12	1 UNIT	Analysis and Teacher Recommendation (First Semester Only)
27.0730095	AP CALCULUS (BC): This course conforms to the Advanced Placement of the College Board and includes advanced techniques of integration, infinite series, plane curves, parametric equations, polar graphs, vector-valued functions and differential equations.	11-12	1 UNIT	AP Calculus AB (Second Semester Only)
27.0720409	CALCULUS II: This course is offered through Georgia Institute of Technology and is taught through distance learning. Students must meet the requirements of the Calculus II course offered at Georgia Institute of Technology.	11-12	1 UNIT	AP Calculus BC (First Semester Only)
27.0730515	CALCULUS III: This course is also offered through Georgia Institute of Technology and is taught through distance learning. Students must meet the requirements of the Calculus III course offered at Georgia Institute of Technology.	11-12	1 UNIT	Calculus II (Second Semester Only)

SCIENCE

COURSE #	COURSE/ DESCRIPTION	GRADE	CREDIT	PREREQUISITE
26.0120007	HONORS BIOLOGY 101Y MAGNET: Honors Biology 101 includes the study of cell structures and processes, basic organic chemistry, genetics, and basic classification of organisms and a general survey of micro-organisms. Emphasis is placed on laboratory investigations and scientific inquiry. Emphasis is placed on computerized PASCO programs for lab investigation and scientific inquiry. There is an emphasis on collaborative research.	9	1 UNIT	Magnet Enrollment and/or Teacher Recommendation and space availability for qualified students
26.0130011 26.0130002 (Honors)	BIOCHEMISTRY (BIOLOGY II): This course will encompass principles of Biology 101 and Chemistry 111. There will be an emphasis on cellular bioenergetics and transport, organic chemistry, and clinical trials of pharmacological research. There will be a heavy integration of biomolecular interactions. Emphasis is placed on computerized PASCO probe-wear programs for lab investigations and scientific inquiry. There is an emphasis on collaborative research in this course.	10-11	1 UNIT	1 Unit of Honors or Magnet Biology 1 Unit of Honors or Magnet Chemistry and space availability for qualified students
26.0140095	AP BIOLOGY: The Advanced Placement Biology course is designed to be the equivalent of a college introductory biology course usually taken by biology majors during their first year. The AP course in biology differs significantly from the usual first high school course in biology with respect to the kind of textbook used, the range and depth of topics covered, the kind of laboratory work done by students, and the time and effort required of students. It provides students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology. This course also prepares students to take the AP Biology Exam.	11-12	1 UNIT	Minimum of 85% in Biology, 1 Unit of Chemistry and Departmental Recommendation
40.0510007	HONORS CHEMISTRY I 111Y MAGNET: This course is designed to introduce the student to the process by which chemical principles and concepts are developed from observations and data, to understand and apply ordinary chemical and other scientific phenomena which he/she encounters in everyday activities, and to assist the student in appreciating the role of the chemist and the chemical industry in the evolution of our present day highly technological society. Emphasis is placed on computerized PASCO probe-wear programs for lab investigations and scientific inquiry. There is an emphasis on collaborative research in this course.	9	1 UNIT	Magnet Enrollment and/or Teacher Recommendation and space availability for qualified students
40.0530095	AP CHEMISTRY Y: AP Chemistry is designed to teach a college year introduction of chemistry for science majors. This also includes the labs associated with first year college chemistry and extensive mathematical applications of laws learned in Chemistry I. The goal is to provide students with the ability to make an adequate score on the AP test to exempt some college chemistry. c	11-12	1 UNIT	1 Unit of Honors Chemistry and Teacher Recommendation
40.0520003	MAGNET HONORS CHEMISTRY II Y: This is an in-depth study of chemical reactions, quantum mechanics, chemical molecular bonding and introduces organic and nuclear chemistry, solutions, electrochemistry, chemical kinetics and equilibrium, acids and bases, and thermodynamics.	10-12	1 UNIT	Honors Chem. I and Teacher Recommendation
40.0810007	HONORS PHYSICS Y MAGNET: This course in physics introduces the relationships among speed, acceleration, and displacement. Vector mathematics is used to make calculations involving both kinetic and dynamic quantities. Algebraic treatments of the laws of mechanics as applied to both linear and circular motion systems are derived and explained. The concepts of conservation of energy and momentum are introduced. This course also deals with the study of light, sound, electromagnetic waves, electricity, electromagnetism and electronics. Emphasis is placed on computerized PASCO probe-	10-11	1 UNIT	Magnet Alg. II Magnet Enrollment and/or Teacher Recommendation and space availability for qualified students

	wear programs for lab investigations and scientific inquiry. There is an emphasis on collaborative research in this course.			
40.0830095	AP PHYSICS B: The Advanced Placement Physics course provides a systematic introduction to the main principles of physics and emphasizes the development of problem-solving ability. The course ordinarily forms the first part of the college sequence that serves as the foundation in physics for students majoring in pre-medicine, applied sciences, or engineering. <u>Some</u> students, as college freshmen, are permitted to undertake upper-level courses in physics or register for courses for which physics is a prerequisite <u>after</u> achieving an adequate score on the <u>optional</u> Advanced Placement Exam.	11-12	1 UNIT	Minimum of 85% in Honors or Magnet Physics and Teacher Recommendation
40.0840095	AP PHYSICS C: This is a calculus-based physics class. The student who completes this class will be prepared to take the AP Physics exam in Mechanics. In addition, material on the AP Physics C exam in electricity and magnetism will be covered. A score of 4 or 5 on this exam is accepted by GA Tech for AP credit in Physics (AP B credit is not accepted by Tech, although some others schools do accept it, particularly for non-engineering majors.) The student who enrolls in either AP Physics course should be comfortable using higher level mathematics in problem-solving.	11-12	1 UNIT	Calculus or taking concurrently AND 85% in Magnet Physics or Honors Physics, and teacher recommendation
40.0820000	MAGNET HONORS PHYSICS II: This course includes real-life applications of the concepts learned in Physics I. Case studies of actual situations such as the Challenger disaster will be analyzed using not only physics but economic and sociological considerations. Other subjects planned for coverage include the history of science and modern physics (Einstein, radioactivity, etc.)	10-12	1 UNIT	Magnet Physics or space availability for qualified 11-12 graders.
26.0620095	AP ENVIRONMENTAL SCIENCE: The Advanced Placement Environmental Science course is designed to be the equivalent of an introductory Environmental Science course at the college level. This course is a scientific examination of the interrelationships of the natural world, and the student will be able to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving and/or preventing them. . The course has significant laboratory and field-work components. The course prepares students to take the AP Environmental Science exam.	11-12	1 UNIT	Grade of 85% or higher in one unit of Biology and one unit of Chemistry and Teacher Recommendation.
26.0730003	HUMAN ANATOMY & PHYSIOLOGY HONORS Y: This course is a study of human body systems compared to other vertebrates.	10-12	1 UNIT	Minimum of 85% in Biology I
26.0640003	ADVANCED GENETICS/DNA RESEARCH: This course is designed as a research-based advanced genetics course, which will focus on human genetics, the human genome, and DNA fingerprinting. Students will be required to have a thorough background in scientific research and lab techniques.	11-12	1 UNIT	Successful completion of AP Biology or AP Physics or AP Chemistry and Magnet Enrollment or Space availability for qualified 11-12 graders

COURSE #	COURSE /DESCRIPTION	GRADE	CREDIT	PREREQUISITE
40.0910003	ADVANCED MAGNET SCIENTIFIC INTERNSHIP: This is a senior level Post-AP Magnet Course and is required of all magnet students to receive the magnet seal. This course will place heavy emphasis on scientific applied research. Students will be required to develop a worksite/research topic. Students will prepare electronic portfolio for the course.	12	1 UNIT	2 AP level Sciences or Math Courses, Magnet enrollment or space availability for other qualified seniors
40.0920003	ADVANCED MAGNET SCIENTIFIC RESEARCH: This is a senior level Post-AP Magnet Course and is required of all magnet students to receive the magnet seal. This course will be blocked with Advanced Science Internship. Emphasis for this course will be in-depth cumulative research portfolio and in-depth presentations skills	12	1 UNIT	2 AP level Sciences or Math Courses, Magnet enrollment or space availability for other qualified seniors
40.0720011	MAGNET FOUNDATIONS/SCIENCE, TECHNOLOGY & SOCIETY: This course is required for all freshmen entering the magnet program and prepares the students for the knowledge and skills necessary for success in the program. It covers impact of technological advances, local studies, reference and research skills, process skills, science comprehensive scientific inquiry project.	9	1 UNIT	Magnet Enrollment
40.0890003	ADVANCED PHYSICS/ROBOTICS: This course will consist of students working independently and collaboratively in the research, design, development of robotics and automation technologies. There will be an emphasis on the application and integration of physics and technological principles in this course. Students will be introduced to the principles of robotics and automation and the role of robotics in industry and business through research, expert speakers, and site visits. They will apply their math, physical science, physics and technological skills and knowledge to the design and development of an array of robotic mechanisms. Students will learn and apply relevant computer programming languages in the process. Working in teams, students will build working robots which can accomplish specific predetermined goals. The class provides a basis for students interested in entering nationally recognized high-stakes robotics competitions.	11-12	1 UNIT	AP Physics or AP Biology or AP Chemistry and Magnet enrollment or space availability for qualified 11-12 graders.
40.0940003	CHEMICAL ENGINEERING & MATERIALS SCIENCE: This course will introduce the concepts of material and energy balances, which are the foundational principles in chemical engineering. Unit operations, separation techniques, and reactor design will also be taught. In addition this course would describe the five major categories of materials: metals, polymers, ceramics, semiconductors, and composites. The students would learn the properties of these different materials, and how these properties affect the performance of the material for various applications	11-12	1 UNIT	AP Physics or AP Chemistry or AP Biology and Magnet enrollment or space availability for qualified 11-12 grade students

CAREER, TECHNICAL, AND AGRICULTURAL EDUCATION

The following are state recognized career/technology courses which can count toward the four units of technology required by the magnet program. **FOR JUNIORS AND SENIORS ONLY:** To receive the Technology diploma or dual diploma, one must take 4 courses from the Technology & Career area with 3 of the 4 courses from one program of study. The different programs of study offered at Wheeler are indicated in the following course descriptions.

COURSE #	COURSE/ DESCRIPTION	GRADE	CREDIT	PREREQUISITE
	SMALL BUS., ACCOUNTING, FINANCIAL MGT. INTERACTIVE MEDIA CAREER PATHWAYS			
07.4811099	COMPUTER APPLICATIONS: This course is a foundation course that introduces practical computer applications. Recommended for all students who have not taken the Business Exploratory in middle school or have had no keyboarding classes.	9-12	1 UNIT	None
11.4130099	COMPUTING IN THE MODERN WORLD: This is an introduction to the principles of computer science and its place in the modern world. Students will acquire a fundamental understanding of the operation of computers and computer networks and create useful programs implementing simple algorithms. Be developing Web pages that include images, sound, and text, they can acquire a working understanding of the internet, common formats for data transmission, and some insights into the design of the human-computer interface. Students will be exposed to career possibilities, and ethical issues relating to computers.	9-11	1 UNIT	NONE
11.4130096 A	This is the first course in the Interactive Media Pathway and the Computer Science Pathway under the new graduation rule.			
11.4130097 B	This course will be offered as an alternating block with another course.			
06.4160099	BUSINESS ESSENTIALS Y is the foundations course for many of the Career Pathways in Business Education. Topics include owning and operating your own business, building a strong knowledge base and develop management skills as different forms of business ownership are studied, functions of management, financial management, technology, communications, legislative regulations, and community involvement. Project-based activities will prepare students for the global marketplace.	9-12	1 UNIT	NONE Prerequisite for Accounting, Small Business Development, and Financial Mgt.Pathways
	SMALL BUSINESS DEVELOPMENT PATHWAY			
06.4150099	LEGAL ENVIRONMENT OF BUSINESS (BUSINESS LAW): This course concentrates on the legal aspects of business ownership and management. Legal issues will include contracts, sales, consumer law, agency and employment law, personal and real property, risk management, environmental law, and government effects on business. The impact of ethics on business operations will be studied. International business principles are infused in the standards for Legal Environment of Business.	10-12	1 UNIT	Business Essentials

COURSE #	COURSE /DESCRIPTION	GRADE	CREDIT	PREREQUISITE
07.4811099	ENTREPRENEURIAL VENTURES: is the third course in the Small Business Development Career Pathway. This course concentrates on the management skills necessary for successful business operation. Students will study management strategies for developing and implementing business plans; structuring the organization; financing the organization; and managing information, operations, marketing and human resources. International business principles are infused in the standards for Entrepreneurial Ventures. An integral component of the Entrepreneurial Ventures course is a school-based or community-based entrepreneurial venture that will engage students in the creation and management of a business and the challenges of being a small business owner.	10-12	1 UNIT	Business Essentials
06.4143099	INTERNATIONAL BUSINESS & MARKETING: Students will understand the fundamental concepts of international business and marketing and the various factors that influence the international business environment. The course will focus on raising awareness of the interrelatedness of one country's political policies and economic practices to another; learning to improve international business relations through appropriate communication strategies; understanding the global business environment and the interconnectedness of cultural, political, legal, economic, and ethical systems; identifying forms of business ownership and international business opportunities; exploring basic concepts underlying international finance, management, and trade relations; and developing an understanding of marketing functions in an international setting.	10-12	1 UNIT	Business Essentials
	ACCOUNTING CAREER PATHWAY			
07.4110099	ACCOUNTING I Y: Accounting I is an overview of the accounting cycle for all business types. It introduces the students to accounting concepts, principles, and procedures. The course emphasizes the skills, knowledge, and attitudes necessary for individuals to conduct personal business or to further their education in the field of accounting. Automated and manual problems will simulate the working environment.	10-12	1 UNIT	NONE
07.4120099	ACCOUNTING II Y: Accounting II provides the student an opportunity to review and further develop the fundamental accounting principles using technology. The course helps students develop additional skills in applying principles used in accounting systems and methods commonly found in business. Accounting II is designed for students interested in continuing their education at the post-secondary level or entering the workforce.	10-12	1 UNIT	Accounting I Y

COURSE #	COURSE /DESCRIPTION	GRADE	CREDIT	PREREQUISITE
07.4211099	BANKING AND INVESTING: Using project-based instruction, students are introduced to the basics of the banking system, bank operating procedures, negotiable instruments, and the deposit and credit functions of banks. Methods used for measuring the financial performance of banks are analyzed. Current issues and future trends in banking are examined. Students formulate business and individual investment decisions by comparing and contrasting a variety of investment options. This is the last year this course will be offered. <u>This is the last year that this course will be offered.</u>	10-12	1 UNIT	Business Essentials
	INTERACTIVE MEDIA PATHWAY			
11.4310099	FUNDAMENTALS WEB DESIGN: Webpage Design includes the creation and design of web pages using elements such as hyperlinks, tables, frames and cascading style sheets. Students will also enhance their skills in Internet usage and research, multimedia presentations, and graphics.	10-12	1 UNIT	Computing in the Modern World
11.4320099	ADVANCED WEB DESIGN: This course provides students with the study of advanced topics in web design. The course will utilize advanced multimedia tools. Emphasis will be placed on higher order thinking and problem solving skills within the context of real world applications.	10-12	1 UNIT	Fundamentals of Web Design
11.4280099	INTRODUCTION TO ANIMATION AND 3D DESIGN Y: This course utilizes the skills mastered in Advanced Web Design. The course will utilize multimedia tools including 3D animation and digital video. Emphasis will be placed on higher order thinking and problem solving skills within the context of real world applications.	10-12	1 UNIT	Advanced Web Design
07.4831099	MULTIMEDIA PRESENTATION & COMMUNICATION TECH: Emphasis will be placed on work-related competencies such as working in a collaborative environment, communication skills, technical skills, project management, research, project design and evaluation, and management of resources. Students will manage the school website, closed circuit announcements, and participate in school-wide media projects, incorporating multimedia, graphics, photographic editing, digital video, 3D Computer Animation and other emerging technologies. Student will act as consultants to faculty members to design multimedia products for use in the classroom setting.	11-12	1 UNIT	Intro to Animation and 3D Design and Teacher Recommendation

COURSE #	COURSE /DESCRIPTION	GRADE	CREDIT	PREREQUISITE
	COMPUTER SCIENCE CAREER PATHWAY			
11.4180099	BEGINNING PROGRAMMING: This is an introductory course in the beginning concepts of object oriented programming, analysis, design and implementation. Students will learn how to create applications using the Visual Basic.NET programming language. Some of the useful and fun applications created include: the math/science equation calculator, flash card math game, slot machine, blackjack, stopwatch, hangman, capital city quiz, face catch and battle bricks paddle game. In addition, Alice 3D programming application will be utilized to reinforce object oriented programming concepts. Alice is designed to teach programming in a unique way using a virtual world with objects to make movies and games. This is the second course in the Computing Programming Pathway.	10-12	1 UNIT	Alg. I and Computing in the Modern World
11.4210099	INTERMEDIATE PROGRAMMING (Gaming Projects): The focus of the course is on the features that support the design and implementation of well-structured programs that are easy to read and maintain. Database overview and integration of database is also part of this course. This course covers the design and implementation of Java programs for the first 9 weeks. The second 9 weeks is project based assignments and is not language specific. These projects may include Gaming (C++), Web Programming (Java, JavaScript) and/or Java GUI (Graphical User Interface) with a database. This is the third course in the Computing Programming Pathway.	10-12	1 UNIT	Algebra I and Beginning Programming
11.4260099	INFORMATION SYSTEMS MANAGEMENT (ORACLE): Oracle database is a popular, industry-recognized, behind the scenes application on the World Wide Web. It covers the designing of databases to meet business needs. The entering, retrieving, and manipulating of data into useful information is covered. Students will analyze case studies to identify patterns in data not obviously related and develop solutions to make a business effective. Student will use Oracle database technology and SQL (structured query language) instructions to employ a database management system, manage the implementation of the database system and develop report-preparation programs. Data Warehousing concepts such as entering and updating data, performing data retrieval and applying data will also be covered. This course prepares students to take the Introduction to Oracle 10i-SQL certification exam.	10-12	1 UNIT	Beginning Programming Or Computing in the Modern World
11.0170095	AP COMPUTER SCIENCE Y: AP Computer Science is a one-unit course that emphasizes programming methodology and data abstractions. It takes an object-oriented approach to programming based on encapsulating procedures and data. AP Computer Science is taken in order to prepare students to take the College Board AP Computer Science AB exam. This course uses the Java programming language.	11-12	1 UNIT	Algebra II Beginning Programming, 3.5 GPA & Teacher Approval

COURSE #	COURSE /DESCRIPTION	GRADE	CREDIT	PREREQUISITE
	ENGINEER DRAWING & DESIGN CAREER PATHWAY			
48.5410099	INTRO TO ENGINEERING DRAWING Y: An introductory course and a prerequisite to all other engineering design and drawing courses. Emphasis is placed on safety, correct use of tools and equipment, drafting media, sketching, lettering, fundamentals of CAD and multi-view drawings. This is the first course in the Engineer Drawing & Design pathway.	9-12	1 UNIT	Alg. I or Math I or enrolled in Accelerated Math I or II OR Teacher Recommendation
48.5420099	ENGINEERING CONCEPTS AND DRAWING Y: Develop skills in dimensioning, tolerancing, pictorials, sections, auxiliary views, as well as intersections and developments. CAD tools and software are used extensively throughout this course. This is the second course in the Engineer Drawing & Design pathway.	10-12	1 UNIT	Intro to Engineering Drawing Y
48.5450099	ARCHITECTURAL DRAWING AND DESIGN I Y: introduces students to the basic terminology, concepts, and principles of architectural design. Emphasis is placed on house designs, floor plans, roof designs, elevations, sections, details, and foundations. This is the third course in the Engineer Drawing & Design pathway.	10-12	1 UNIT	Intro to Engineering Drawing Y
48.5460099	ARCHITECTURAL DRAWING AND DESIGN II Y: introduces students to the basic terminology, concepts, and principles of architectural design. Emphasis is placed on commercial designs, floor plans, roof designs, elevations, sections, details, and foundations.	10-12	1 UNIT	Intro to Engineering Drawing Y Architectural Drawing and Design I Y
48.5430099	SOLID MODELING AND DESIGN Y: is designed for students who are interested in mechanical drafting areas that provide more in-depth study of mechanical design. Emphasis is placed on 3-d drawings, wire frames, rendering, solid modeling, and graphic presentations.	11-12	1 UNIT	Intro to Engineering Drawing Y Engineering Concepts Y
48.5440099	TECHNICAL MANUFACTURING AND CONCEPTS Y: allows students to develop skills in fluid drawings, electricity/electronics, working drawings, and manufacturing process.	10-12	1 UNIT	Intro to Engineering Drawing Y Engineering Concepts Y
	ENGINEERING CAREER PATHWAY			
21.4250099	FOUNDATIONS OF ENGINEERING & TECHNOLOGY: This is an introductory course for all Georgia Engineering & Technology Education pathways. This course provides students with opportunities to develop fundamental technological literacy as they learn about the history, systems, and processes of invention and innovation.	9-12	1 UNIT	Alg. I or Math I or enrolled in Accelerated Math I or II OR Teacher Recommendation

COURSE #	COURSE /DESCRIPTION	GRADE	CREDIT	PREREQUISITE
21.4710099	ENGINEERING CONCEPTS: Engineering Concepts is the second course in the Engineering Pathway. This course introduces students to the fundamental principles of engineering. Students learn about areas of specialization within engineering and engineering design, and apply engineering tools and procedures as they complete hands-on instructional activities.	9-12	1 UNIT	Fnd. Of Engineering & Technology or Teacher Approval
21.4720099	ENGINEERING APPLICATIONS: Engineering Applications is the third course in the engineering pathway. Students have opportunities to apply engineering design as they develop a solution for a technological problem. Students use applications of mathematics and science to predict the success of an engineered solution and complete hands-on activities with tools, materials, and processes as they develop a working drawing and prototypes.	10-12	1 UNIT	Engineering Concepts or Teacher Approval
21.4610099	RESEARCH, DESIGN & PROJECT MANAGEMENT Y is the fourth course in the engineering pathway. This course provides students with opportunities to work with students from other pathways as a member of a design team. Research strategies, prototype testing and evaluations, and communication skills are emphasized.	11-12	1 UNIT	Completed Alg. I Teacher Recommendation
	ELECTRONICS/TELECOMMUNICATIONS CAREER PATHWAY			
21.4520099	FUNDAMENTALS OF ELECTRONICS (Electronics I): Introduces the field of electronics; covers AC and DC circuitry and basic transistor theory and emphasizes safety procedures. Presents electronic circuits and how they control industrial equipment and processes; covers applications of semi-conductors, photoelectric devices, relays, servomechanisms and electronic heating together with digital principles and applications. Includes experiments and practical product work such as robotic interfacing with computers. Introduces careers in the fundamentals of telecommunications systems.	9-12	1 UNIT	Alg. I or Math I or enrolled in Accelerated Math I or II OR Teacher Recommendation
21.4530099	ADVANCED AC AND DC CIRCUITS: This course introduces students to the history and development of analog circuits. Students will identify and define operational characteristics and applications of amplifiers, oscillators and applications of communications circuits. II.	9-12	1UNIT	Fundamentals of Electronics
21.4540099	DIGITAL ELECTRONICS: In this class students have the opportunity to apply prior learning in electronics. Applying math and science to predict the success of an engineered solution and complete hands-on activities with tools, materials, and processes as they develop functional devices and working prototypes. Basic telephone, cable, modular connectors; central office and telephone trouble-shooting prepare students for Telecommunications. Students will construct projects (CAT 5 cable testers, coax and transmission line testers along with a fiber optic tester) that will be used in Telecommunications.	10-12	1 UNIT	Advanced AC & DC Circuits

COURSE #	COURSE/ DESCRIPTION	GRADE	CREDIT	PREREQUISITE
10.5310099	TELECOMMUNICATIONS: This course is comprised of microwave receiving and transmission, global positioning systems, and data communication. The course includes extensive hands-on instruction and curriculum delivery via leading edge on-line curriculum offered by the NIDA Corporation, which is a primary supplier of United States military telecommunications training programs. This course prepares students for continued post-secondary telecommunications education and preparation in the field of electrical engineering.	10-12	1 UNIT	Digital Electronics
	VIDEO PRODUCTIONS CAREER PATHWAY			
10.5110099	VIDEO PRODUCTIONS I Y: Students will learn to write for video production, draw storyboards, operate a video camera , utilize lighting and sound techniques, edit using the IMac OS-X, , produce titles, effects and sound, promote a product, create animation, and produce a television show for broadcast	9-12	1 UNIT	NONE
10.5120099	VIDEO PRODUCTIONS IY: Students work in crews to produce, film, and edit sports, events, surveys & feature stories to create the show “WILDCAT TV Homeroom Edition”, a homeroom program aired throughout the school on Wednesdays. Students must meet deadlines and produce school-appropriate work.	10-12	1 UNIT	Broadcast Video I AND Teacher Approval
10.513009	VIDEO PRODUCTIONS IIY: Students are expected to learn the advanced editing software Final Cut Pro. They also hold jobs as Executive Producers of the weekly Television show “Wildcat TV Homeroom Edition” and The Senior Video yearbook. They edit all events, sports & film interviews and special events that capture Seniors in their final year of high school.	11-12	1 UNIT	Broadcast Video I & II AND Video Teacher Approval
10.5140099	VIDEO PRODUCTIONS APPLICATIONS: Students must independently produce segments and programs from start to finish, produce and direct on location; execute all post-production; deliver finished products; produce a portfolio of student work suitable for employment or post-secondary admission.			Video I AND Video Teacher Approval
	PLANT SCIENCE/HORTICULTURE CAREER PATHWAY			
02.4710099	BASIC AGRICULTURAL SCIENCE AND TECHNOLOGY introduces the major areas of scientific agricultural production and research; presents problem solving lessons and introductory skills and knowledge in agricultural science and agri-related technologies. This is the first course in the “Plant Science/Horticulture Career Pathway.	9-12	1 UNIT	NONE
01.4610099	GENERAL HORTICULTURE AND PLANT SCIENCE Y: This course introduces the major concepts of plant and horticulture science. Students will learn how to plant, water, fertilize and propagate vegetables, flowers and other plants. Hands on activities in the greenhouse and on campus will prepare students with basic skills and knowledge to be used at home and on the job. This is the second course in the “Plant Science/Horticulture Career Pathway.”	9-12	1 UNIT	NONE
COURSE #	COURSE/ DESCRIPTION	GRADE	CREDIT	PREREQUISITE
01.4700099	NURSERY AND LANDSCAPE Y: This course is the study of basic landscape design with general emphasis on horticulture related topics including vegetables, flowers, shrubs, trees, and greenhouse production. This course provides students with the basic skills utilized by the green in nursery production and management and landscape design and management. industry. This is the 3rd course in the “Plant Science/Horticulture Career Pathway.	9-12	1 UNIT	General Horticulture
01.4620099	FLORICULTURE PRODUCTION & MANGEMENT: This course is the study of flowers	9-12	1 UNIT	General Horticulture

	with basic horticulture emphasis. Students will develop skill proficiencies in various techniques of floral, garden, design, landscape and greenhouse production.			
01.4640099	NURSERY PRODUCTION & MANAGEMENT: This course is the Greenhouse Management course. The student will learn how to operate the Greenhouse and its production schedule and assist with all technical operations.	11-12	1 UNIT	Gen. Hort, Nursery & Landscape, Floriculture & Teacher Approval
	FAMILY AND CONSUMER SCIENCE CAREER PATHWAY			
	EARLY CHILDHOOD EDUCATION PATHWAY			
20.5251099	INTRODUCTION TO EARLY CHILDHOOD EDUCATION: Introduction to Early Childhood Care focuses on infancy to preschooler physical, cognitive, creative, social, emotional, and moral development of children. Topics discussed include: planning and guiding developmentally appropriate practices for working with young children including career paths, theories of child development, developmentally appropriate learning environment, relationships with others, guidance, lesson planning, cultural diversity, and students with special needs.	9-12	1 UNIT	NONE
20.52510099	HUMAN GROWTH & DEVELOPMENT FOR EARLY CHILDHOOD: This course covers the knowledge, skills, attitudes, and behaviors regarding the growth and development of infants and children. Topics that are discussed are physical, emotional social, cognitive or mental, and moral development of children. The human needs across each age and stage of childhood as well as impacts of family and societal crisis on the development of the child will be discussed. Career opportunities in this field will be explored.	10-12	1 UNIT	Intro to Early Childhood Education
20.52610099	HEALTH, SAFETY & NUTRITION FOR THE YOUNG CHILD: Providing a safe and healthy learning environment for young children is the emphasis of this course. The course develops skills for employment in early childhood-related occupations. The work place skills discussed will be worth ethics, health, safety, nutrition education, certification in CPR/FIRST AIDE/FIRE SAFETY, abuse and neglect, childhood illnesses, and childhood diseases.	11-12	1 UNIT	Human, Growth & Development for Early Childhood
	NUTRITION AND FOOD SERVICE PATHWAY			
20.41610099	FOOD, NUTRITION AND WELLNESS: Food, Nutrition and Wellness teaches nutritional needs and food choices for the best health of individuals across the lifespan. This course is knowledge based in understanding the nutrient content, in understanding the development of chronic diseases, and in understanding food safety.	9-12	1 UNIT	NONE
COURSE #	COURSE/ DESCRIPTION	GRADE	CREDIT	PREREQUISITE
20.41710099	FOOD & NUTRITION THROUGH THE LIFESPAN: This is an advanced course in food and nutrition that addresses the nutritional needs at specific stages of the human life cycle such as lactating mothers, infancy, childhood, adolescence, and adulthood including old age. The most common nutritional concerns, food choices, health status and strategies to help the well-being of each stage of the lifecycle will be discussed. The careers discussed will be dietetics, consumer foods, and nutrition science careers.	10-12	1 UNIT	Food, Nutrition & Wellness
20.41810099	FOOD SCIENCE: Food science is an advanced course that discusses how to expand and improve the food supply. Students will evaluate the effects of processing, preparation, and storage of food. They will evaluate the quality, safety, wholesomeness, and nutritional value of foods. This course will build on information from chemistry and the wonders of the scientific world.	11-12	1 UNIT	Food & Nutrition Through the Lifespan
	CULINARY ARTS			
20.5310099	INTRODUCTION TO CULINARY ARTS: Introduction to Culinary Arts is a course designed to introduce students to fundamental food preparation terms, concepts, and methods	9-12	1 UNIT	NONE

	in Culinary Arts where laboratory practice will parallel class work, fundamental techniques, skills, and terminology are covered and mastered with an emphasis on basic kitchen and dining room safety, sanitation, equipment maintenance and operation procedures. Course also provides an overview of the professionalism in the culinary industry and career opportunities leading into a career pathway to Culinary Arts.			
20.5321099	CULINARY ARTS I: Culinary Arts 1 is designed to create a complete foundation and understand of Culinary Arts leading to post secondary education or a foodservice career. Building from techniques and skills learned in Foundation of Culinary Arts, this fundamentals course beings to involve in-depth knowledge and hands on skill mastery of Culinary Arts.	9-12	1 UNIT	Intro To Culinary Arts
20.5331099	CULINARY ARTS II: Culinary Arts 2 is an advanced and rigorous in-depth course designed for the student who has continued the Culinary Arts Pathway and wishes to continue their education at the post secondary level or enter the foodservice industry as a proficient and well rounded individual. Strong importance is given to refining hands on production of the classis fundamentals in the commercial kitchen.	10-12	1 UNIT	Culinary Arts I
20.0372099 (I) 20.0382099 (II)	WORK PROGRAM FOR CULINARY ARTS: Offers a work-based curriculum through employment in a community business. Students are released daily (4th block) for community based employment/training in foodservice related job. An average of 15 on-the-job hours is required during each school week for 1 unit of credit. Only junior and senior may submit an application. Personal means of transportation to employment site is required.	11-12	1 UNIT	Culinary Arts Teacher Approval

COURSE #	COURSE/ DESCRIPTION	GRADE	CREDIT	PREREQUISITE
	HEALTH OCCUPATIONS –THERAPEUTIC SERVICES CAREER PATHWAY			
	PRE-REQUISITE FOR MEDICAL AND EMERGENCY SERVICES PATHWAY			
25.5210099	INTRO TO HEALTHCARE SCIENCE: This course is a foundation course for ALL of the Healthcare Science courses offered at Wheeler High School. It is designed to introduce students to a variety of healthcare delivery systems and the career opportunities available in each. It also helps students develop skills and attitudes necessary to succeed in the healthcare industry. Students will learn medical terminology, microbiology, and safety skills regulated by OSHA. Students will also learn basic first aid and basic life support. This is the first course in the Medical Services and Emergency Services pathways.	9-12	1 UNIT	NONE
	MEDICAL SERVICES PATHWAY			
25.5220099	APPLICATIONS OF THERAPEUTIC SERVICES: This is an intermediate or second level course in the therapeutic services pathway and is designed to provide an overall framework of skills necessary for direct patient care. Assessment techniques such as vital signs, first aid, and basic life support for infants, children, and adults are covered. The functions and pathophysiology of each body system is explored in greater detail	9-12	1 UNIT	Intro to Healthcare Science
25.5250099	GENERAL MEDICINE: This course is designed to introduce students to each of the major departments of the average acute care setting/hospital including but not limited to; Orthopedics, Cardiology, Diagnostic Imaging, MedSurg, Gastroenterology, Urology, and Customer Care Services. Student s may participate in a work-based learning program with a minimum 40-hour clinical practicum.	11-12	1 UNIT	Applications of Healthcare Science & Teacher Recommendation
	EMERGENCY SERVICES PATHWAY			
25.5640099	EMERGENCY AND DISASTER PREPAREDNESS: This course is designed to introduce students to the world of pre-hospital emergency care and develop in them skills necessary for dealing with disasters and emergency situations. This course covers topics such as Disaster Psychology, Medical Assistance, Search/Rescue Techniques, and Fire Chemistry. Students demonstrate knowledge of skills obtained through participation in simulated disaster scenarios.	10-12	1 UNIT	Intro to Healthcare Science
25.5620099	CONCEPTS OF EMERGENCY MEDICINE: This course offers the student a comprehensive view of pre-hospital/emergency care. Students will follow the curriculum established by the D.O.T. for First Responders. Students will be involved in mock scenarios involving triage/mass casualty, extrication of victims in complex access situations. Patient assessment, stabilization and treatment of victims of sudden illness or injury will be covered. Students will be required to meet standards and professional guidelines set forth by Occupational Health and Safety Administration (OSHA) and the National Registry of Emergency Medical Technicians (NREMT), and the Health Insurance Portability Act of 1996 (HIPAA).	11-12	1 UNIT	Emergency & Disaster Preparedness
COURSE #	COURSE/ DESCRIPTION	GRADE	CREDIT	PREREQUISITE
	JROTC CAREER PATHWAY			
28.4110099	JROTC Air Force I: This course begins the study and practice of leadership. This includes military heritage, organization, traditions and their relationship to the mission of business and the importance of teamwork. Personal behavior and responsibility are studied to develop ethics and time management skills. The examination of flight and its relationship to current	9-10	1 UNIT	Approval of ROTC instructors

	events begins with the heritage of flight and proceeds through WWII.			
28.4120099	JROTC Air Force II: The study and practice of leadership continues with the study of government and citizenship in the United States to include customs, courtesies duties and rights, and different forms of government throughout the world. The study of aviation history also continues with the post WWII years and progresses through Desert Shield/Desert Storm.	9-10	1 UNIT	JROTC Air Force I and Approval of ROTC instructors
2840130099	JROTC Air Force III: Intercommunication skills and corps activities are emphasized in this year of leadership study. The course begins with developing an understanding of the purpose of and preparing oral and written communication. Study develops understanding of individual behavior to include personality, emotions, defense mechanism, and value systems. Aerospace sciences are also studied. The cadet begins with developing knowledge of the atmosphere and proceeds through weather elements, forecasting, physiology of flight, aerospace medicine, human engineering, and the development of protective equipment and simulators.	10-12	1 UNIT	AFJROTC II or Departmental Recommendation
28.4140099	JROTC Air Force IV: Intercommunication and corps skills development continues. Emphasis is placed on understanding group behavior and basic leadership concepts. Study begins with qualities and principles necessary for effective leadership and continues through situational leadership, follower ship and building teamwork. Aerospace science begins with basic aeronautics and continues through understanding aircraft motion and control. Basic engine principles, facts and general operating principles of rocket engines, civilian and military aerospace vehicles, and principles of navigation.	10-12	1 UNIT	AFJROTC III or Departmental recommendation
28.4150099	JROTC Air Force V: Leadership education emphasized life skills. Study begins with understanding benefits of higher education and the importance of obtaining a higher degree or skill after high school to include development of an understanding of the college selection process and financial aide. Emphasis then moves to the job search. Comprehension of the job search process and the skills requirements to the application process are the foundation used to develop resume skills and interviewing techniques. The study of the exploration of space starts with rocket boosters and orbital mechanics. Then it moves to American space programs and their development to include man's journey to the Moon. From there, our solar system and the origins of space are studied.	11-12	1 UNIT	AFJROTC IV or Departmental recommendation

COURSE #	COURSE/ DESCRIPTION	GRADE	CREDIT	PREREQUISITE
28.4160099	JROTC Air Force VI: Life skills student continues with financial planning; its background, the credit trap, banking and spending decisions, savings, investments and insurance, and the development of real life issues, understanding to include citizenship responsibilities. From here, career opportunities are studied with research into selecting the right career path and development of a basic understanding of federal government employment to include the military and the aerospace industry. Exploration of space studies continues with what it takes to survive and live in space along with development of an understanding of the physiological results of manned space flight. Emphasis turns to the development of the space shuttle, commercial use of the space program and the development of space stations.	11-12	1 UNIT	AFJROTC V or Departmental recommendation
28.4170099	JROTC Air Force VII: The course emphasizes the principles of management. Study begins with management history, its importance, principles and functions. Then emphasis moves to developing a comprehension of personal coping mechanisms for conflicts in values and comprehension of management skills, roles, and performance that influences managerial behavior. This includes learning the importance of delegation skills and their uses.	11-12	1 UNIT	AFJROTC VI or Departmental recommendation
28.4180099	JROTC Air Force VIII: Principles of management study continues with management problem solving, decision making, negotiation, and mentoring. From here, emphasis is placed on the management of self and others. This area first looks at the management of self-development and then moves on to time management, information management, people management, and an understanding of the importance of people skills.	11-12	1 UNIT	AFJROTC VII or Departmental recommendation

CAREER TECHNICAL MENTORSHIP AND INTERNSHIP

COURSE #	COURSE/ DESCRIPTION	GRADE	CREDIT	PREREQUISITE
70.0110099 (I) 70.0120099 (II) 70.0110096 (.5 F) 70.0110097 (.5 S)	CAREER TECHNICAL MENTORSHIP I and II: Interested in being an aide in one of the administrative offices? This course is designed to provide the student with skills required for successful performance in an administrative support position. This course will include training and work based experience in a school office environment. Students may earn up to <u>2 units</u> . Minimum day and internship students will not be considered for this program.	11-12	1 UNIT	Application 2.5 GPA 2 Teacher Recommendations Good discipline record
70.0210099--I 70.0220099--II 70.0230099--III 70.0240099--IV	INTERNSHIP I, II, III AND IV: Opportunities exist for selected students who wish to explore specific career fields with on-site mentors in community business settings. The Work-based Coordinator visits the job mentor to assess student performance and supervises the student in job search skill development. The student maintains a weekly journal, records of weekly hours on the job and must complete program participation forms. Only juniors and seniors may submit an application. Personal means of transportation to internship site is required. Students leave campus after third block.	11-12	1 UNIT EACH	On Track for Graduation Must have own transportation Application from Coordinator—Mrs. Crumb

Magnet Related Technology

The following courses are recognized by the magnet program as acceptable substitutes for the four unit magnet technology requirement.

COURSE #	COURSE/ DESCRIPTION	GRADE	CREDIT	PREREQUISITE
52.0410099 52.0420099 52.0430099 52.0440099	TECHNICAL THEATRE: This course is designed with the true “techie” in mind. Students study every facet of technical theatre in-depth and hands-on. Each student chooses an approved play and then designs promotional materials, set, lighting, sound, costuming, make-up, and props. If you like to take things apart, put things together, and generally get your hands dirty while thinking “outside the box”, this is where you need to be!	10-12	1 UNIT	Intermediate Theatre or Teacher approval
23.0320099	JOURNALISM/NEWSPAPER I Y: This course explores journalistic writing through analysis of the newspaper. It concentrates on purpose, influence, and structure and language use. It also covers news-gathering, ethics, copyrighting, editing and revising. It will include typesetting, circulation and production as minor aspects.	9-12	1 UNIT	NONE
23.0320011	JOURNALISM/ANNUAL I Y: This course explores writing through the analysis of yearbooks. It concentrates on purpose, influence, and structure and language use. It also covers news-gathering, ethics, copyrighting, editing and revising. . It will include typesetting, circulation and production as minor aspects.	9-12	1 UNIT	NONE
23.0330011 23.0350011 23.0360011	ADVANCED JOURNALISM ANNUAL II, III, AND IV: Upper level annual courses for students pursuing excellence in annual journalism.	10-12	1 UNIT	Intro to Journalism Teacher approval
23.0330099 23.0350099 23.0360099	ADVANCED JOURNALISM NEWSPAPER II, III, AND IV: Upper level newspaper courses for students pursuing excellence in newspaper journalism.	10-12	1 UNIT	Intro to Journalism Teacher approval
50.0211099	BASIC VISUAL ARTS COMPREHENSIVE: This class is open to any student with an interest in art. This is a full block class that gives the student an in depth studio experience and art history background on which to build. Areas of study include drawing, painting, pottery, printmaking, and color theory.	9-12	1 UNIT	NONE
50.4811095	AP STUDIO: The class is designed for serious art students who may pursue a career in the visual arts field. This class requires a significant out of class time commitment and it carries a quality point. Drawing, printmaking, painting, and mixed media are the major areas of study. Personal artistic style development is encouraged.	11-12	1 UNIT	Visual Arts /Comprehensive I, Drawing & Painting Teacher Approval
50.0711099	PHOTOGRAPHY IY: This course introduces students to photographic equipment, materials, processes and philosophy. Includes experiments with pinhole cameras, historical techniques, photographic paper, film, 35 mm camera operation, film processing, enlarging and presentation of images. Some outside of class time will be necessary. Students must have a single lens reflex 35mm camera.	9-12	1 UNIT	Visual Arts/ Comprehensive I
50.0712099	ADVANCED PHOTOGRAPHY II: This course intends to continue students’ education onto photographic equipment, materials, processes and philosophy. Special emphasis is given to projects involving historical exploration, camera vision, and conceptual ideas. Students will explore multiple photographic styles including commercial and fine art uses of photographic expression. They will work toward the creation of a finished portfolio of images. Some outside of class time will be necessary. Students must have a single lens reflex 35mm camera.	11-12	.5 UNIT EACH	Visual Arts/ Comprehensive I Photography IY Teacher Approval
53.0230095 (S)	AP MUSIC THEORY: This is the school's advanced placement music theory course. This class analyzes and composes music from the classical period and studies its influence on current music trends.	11-12	1 UNIT	Basic knowledge of written music and AP teacher approval