



School Year: 2025-2026

Course Name	Engineering Concepts	Course Code	21.47100
School Name	Arabia Mountain High School Academy of Engineering	Teacher's Name	Shenica Bridges-Mathieu
School Phone Number/Rm#	678.875.3692 Room E101	Teacher's Email	Shenica_Bridges_Mathieu@dekalbschoolsga.org
School Website	https://arabiamtnhs.dekalb.k12.ga.us/arabiamountainhighschool_home.aspx	Teacher's Websites	https://www.arabiamtnhs.dekalb.k12.ga.us/ShenicaMathieu.aspx https://sites.google.com/view/bridgesengineeringconcepts/home

Course Description:

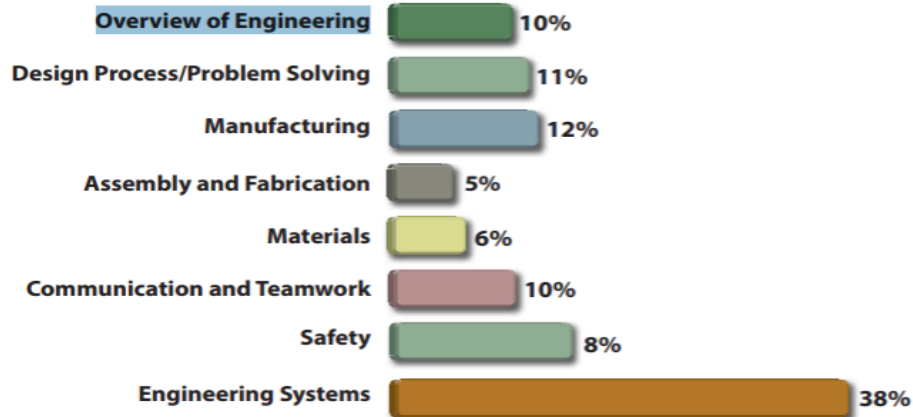
Engineering Concepts is the second course in the Engineering and Technology Pathway. Students learn to design technical solutions to engineering problems using a whole systems approach to engineering design. Students will demonstrate the application of mathematical tools, teamwork, and communication skills in solving various design challenges while maintaining a safe work environment. The prerequisite for this course is Foundations of Engineering and Technology.

Curriculum Overview

Unit	Priority Standards	Pacing	Focus & Key Topics
A. Rituals Routines, CTSOs/TSA, Safety, Diagnostics/Review	STEM- EC-1, STEM- EC-14	3 weeks	Skills Assessments, Diagnostics, CTSOs, TSA, Tools Review
1. Engineering Launchpad: Design & Conquer	STEM-EC-2, STEM-EC-7	2 weeks	Engineering design process, problem-solving, documentation, prototyping
2. Safety First: Engineering Ethics Escape Room	STEM-EC-3, STEM-EC-10	2.4 weeks	Safety standards, hazard ID, PPE, ethics
3. Engineering Explorers: Career Quest	STEM-EC-4, STEM-EC-5	2.4 weeks	Engineering disciplines, career paths, education, emerging fields
4. Project Management: From Plan to Execution	STEM-EC-8	1.4 weeks	Gantt charts, resource allocation, teamwork, risk management
5. Blueprint Mastery: Graphics & Drawing	STEM-EC-7	1.6 weeks	Technical sketching, dimensioning, CAD intro, visual communication
6. AI Odyssey: Engineering's New Frontier	STEM-EC-14	2 weeks	AI basics, ML applications, ethics, predictive maintenance
7. Physics Fusion: Math Meets Engineering	STEM-EC-11, 12, 13	3.2 weeks	Applied physics, math modeling, data analysis, optimization
8. Material World: Manufacturing Marvels	STEM-EC-6, STEM-EC-9, STEM-EC-12	3 weeks	Material properties, manufacturing, quality control, sustainability
9. Rise of the Machines: Robotics Revolution	STEM-EC-15	3 weeks	Robotics, automation, sensors, control systems
10. Power Play: Sustainable Energy Solutions	STEM-EC-6, STEM-EC-13	3 weeks	Renewable energy, energy efficiency, environmental impacts
11. Future Forge: Advanced Design Studio	STEM-EC-2, STEM-EC-7, STEM-EC-13	2 weeks	Interdisciplinary design, advanced prototyping, emerging tech

End of Pathway Information

Areas Covered



BOARD-APPROVED INSTRUCTIONAL MATERIALS

For this course, instruction will be delivered through an online platform. Any textbooks or printed materials will be provided for use during class only and may not be taken home for personal use. Students will record their login information in their agendas on the first day of class.

Grading & Course Policies

District Grading Philosophy

The DeKalb County School District prioritizes teacher-led assessment of student learning during ongoing classroom instruction. Teachers use a variety of methods and resources to deliver lessons, evaluate progress, and report grades that reflect true academic achievement. Progress is communicated in a timely manner via the electronic grading portal.

(See Board Policy IHA)

Grading Categories & Protocol

- **Formative Assessment** – 0%
- **Assessment During Learning** – 25%

- **Guided, Independent, or Group Practice – 45%**
- **Summative Assessment / Assessment of Learning – 30%**

Grade Scale:

A: 90–100 B: 80–89 C: 71–79 D: 70 F: Below 70

P = Pass F = Fail (*in designated courses*)

Notes:

- English Learners (ELs) do not receive numerical/letter grades in core content during their first year. A grade of CS (Consistently Satisfactory) or CU (Consistently Unsatisfactory) is assigned, with possible extensions upon approval.
 - Elementary special areas (PE, Music, Art, etc.) use P/F grading.
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District Expectations for Success

Progress Reports: Issued at 4.5, 9, and 13.5 weeks each semester. Intervention plans will be created if deficiencies are found. (*See Board Policy IH*)

Academic Integrity: Cheating, falsifying records, forging signatures, or using unauthorized access is prohibited. (*See Code of Student Conduct*)

Homework: Should be meaningful, directly tied to classwork, and collected, evaluated, and returned. (*See Board Policy IHB*)

Make-Up Work for Absences: Legal or uncontrollable absences allow make-up opportunities within the designated time frame. (*See Board Policy IHEA*)

Classroom Expectations

Grades are earned, not given.

Students must check the designated classroom tool daily (accessible on mobile devices).

Homework Policy:

Homework reinforces learning, builds self-discipline, and keeps parents informed. Posted in Canvas or sent via student email.

Late Policy – Homework: Up to 3 late submissions allowed, with point deductions.

Late Policy – Classwork/Projects/Labs:

- Day 1: -11%
- Day 2: -20%
- Day 3: -25%

Reassessment Policy: At teacher discretion, within the same 4.5-week period.

Make-Up Policy for Excused Absences:

Excused absence pass required from Attendance Office; 24 hours per excused day to complete work. Unexcused absences = zero.

Recovery Opportunity: One missing/failed grade can be replaced at the end of each 4.5, 9, and 13.5-week period after attending tutorials.

Projects: Must be completed in class due to specialized materials/software. Follow Make-Up Policy if absent.

Behavior & Conduct

1. Be on time (tardy policy enforced via Infinite Campus).
2. Come prepared with required materials.
3. Stay alert and engaged.
4. Respect classmates, teacher, and property.
5. Do not interrupt instruction.
6. Dismissal only at the bell.
7. No gum, food, or drinks in lab.
8. Computers are for class-related work only; non-educational sites and activities are prohibited.

Internet Use: Educational purposes only; violations may result in loss of privileges.

Lab Safety: Follow all safety rules, use protective gear, and operate equipment only when trained and authorized.

Detention: Scheduled by teacher.

Materials & Supplies

- Chromebook, desktop, or laptop (*phones/tablets may not be compatible*)
 - 8GB+ flash drive
 - Engineering notebook
 - Pens, pencils, highlighters
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Extra Help & Parent Involvement

Tutorials: Mondays by appointment, 3:30–4:00 PM. Email to schedule.

Parent Partnerships & TSA: Parents are encouraged to volunteer with TSA events, serve as guest speakers, or join the advisory board. TSA dues are due 9/4/25 to Mr. Roberts (Room A101).

Academic Dishonesty Policy

Academic dishonesty is a serious violation of Arabia Mountain High School's academic honor code. Cheating, plagiarism, or any unauthorized assistance on assignments undermines the integrity of learning and will not be tolerated.

Definition of Academic Dishonesty

- Cheating: Using unauthorized materials, devices, or assistance during any academic activity, or giving/receiving unauthorized help.
 - Plagiarism: Presenting someone else's work—including material from classmates, teachers, websites, or other resources—as your own without proper attribution. When in doubt, consult your instructor before submitting work.
 - Academic Assignments Include: All classwork, homework, quizzes, tests, projects, and other instructor-assigned tasks.
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Virtual Learning Protocol

Teachers determine the format for virtual assessments, which may include timed tests, restricted devices, or video monitoring during testing. Standardized assessments (e.g., MAP, district benchmarks) may require additional protocols.

Examples of Cheating in a Virtual Setting

- Using unauthorized materials or devices during a test.
- Giving or receiving test information before or during an assessment.
- Submitting work that is not your own.
- Plagiarizing from any source.

Consequences

- Administrative referral and parent notification.
 - Required retake or alternate assessment to replace the grade.
 - After three administrative referrals, the matter will be referred to the Academic Committee, which may result in dismissal from Arabia Mountain High School.
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In-Person Protocol

To align with standardized testing guidelines and maintain exam integrity:

- Cell phones and smartwatches are strictly prohibited from visibility during any assessment.
- Cheating includes using unauthorized materials, giving/receiving test information, submitting work that is not your own, and plagiarism.

Consequences

- Administrative referral and parent notification.
 - Required retake or alternate assessment to replace the grade.
 - Three administrative referrals will result in review by the Academic Committee and may lead to dismissal from Arabia Mountain High School.
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Next Steps:

After you have read the syllabus online via email or Canvas, sign the acknowledgement below and the academic dishonesty policy on the printed page given to you by your teacher.

Syllabus & Academic Dishonesty Policy Acknowledgment

Syllabus Acknowledgment

I have read and reviewed the course syllabus for this class at Arabia Mountain High School. I understand the expectations, grading policies, classroom procedures, and requirements outlined in the syllabus. I acknowledge my responsibility to adhere to these guidelines and to seek clarification from the instructor if I have any questions or concerns.

Academic Dishonesty Policy Acknowledgment

I have read and understand the Academic Dishonesty Policy for Arabia Mountain High School. I am aware that cheating, plagiarism, and any other form of academic dishonesty are prohibited and will result in disciplinary action as outlined in the policy. I understand the consequences of violating this policy and agree to abide by it at all times.

Student Name (Print): _____

Student Signature: _____

Parent/Guardian Name (Print): _____

Parent/Guardian Signature: _____

Date: _____