



MATH 1301

Math For Electronics



About Us

The College of Biomedical Equipment Technology (CBET) is a majority Veteran owned and operated private college offering Biomedical Equipment Technician (BMET), Healthcare Technology Management (HTM) and Healthcare Information Systems Management training at the certificate and associates degree levels. Our leadership team is comprised of individuals with decades of experience in the healthcare industry and education. Similarly, our instructional staff is comprised of industry experts and award-winning educators dedicated to providing quality education, training, and career services to our students.

Locations

Main Campus

105 Windy Meadows, Suites 201
Schertz, Texas 78154
www.cbet.edu

Mission

“The College of Biomedical Equipment Technology delivers premier education and training in Healthcare Technology Management and Information Technology to equip students to meet the evolving needs of the industries we serve.”

About the Course

The **Math for Electronics** course is designed to equip you with the mathematical skills and tools for you to succeed in your classes and your chosen profession.

Course Description

This course is designed to strengthen the students' understanding of basic mathematical concepts from an algebraic approach, combined with business applications. The course includes basic math functions with whole numbers, decimals, fractions, ratios, proportions and percentages, geometry, and algebra. Students will take an in-depth look at solving equations with unknown values, and simple and compound interest.

Learning Objectives

LO1. Factorization, Fractions, and Mixed Numerals: To learn about whole numbers and fractions and be able to perform basic mathematical manipulations.

LO2. Decimals, Ratios, Proportions, Percentages: To define decimals, ratios, proportions and percentages, and demonstrate their difference and uses.

LO3. Geometry: Define and be able to determine perimeter, area of basic shapes including 2D, 3D shapes, and use of the Pythagorean Theorem.

LO4. Real Numbers: To define real numbers, and how to perform addition, subtraction, multiplication and division with real numbers.

LO5. Solving Expressions and Equations: To learn how to manipulate and solve equations with unknown values.

LO6. Final Review: To review all covered material to further establish all covered concepts.

Time-on-Task.

Time on task is the total learning time spent by a student in this course, including instructional time and time spent studying and completing course assignments and other activities (e.g., reading, research, writing, individual and group projects.) These activities are:

- Attending the weekly webinars
- Reading course presentations/ "lectures"
- Reviewing course notes
- Reading assignment references, books, or other course materials
- Participation in online discussions
- Conducting research
- Writing papers or other assignments
- Completing other assignments (e.g., projects)

The entire course Time-on-Task is 116 hours.

Instructor

The **Math for Electronics** course is led by an experienced data analytics and consulting professional via webinar and interactive distance learning formats. In addition to the weekly live sessions, the instructor is accessible via the Learning Management System (LMS) daily, and by appointment via Zoom between the hours of Monday through Friday from 0800-1700 (CST).



Melissa Mocarski is a proud wife, mom, engineer and instructor working here at CBET. she began her career as a BMET with GE Healthcare working in the hospital setting and since then has held various roles in both Engineering and Management. Mrs. Mocarski considers herself a lifelong student, as she has obtained Bachelor's Degree's in both Biomedical Engineering and Technical Management. Later, Melissa went on to receive a Master's in Business Administration with a Concentration in Supply Chain Management in addition to a Master's Degree in Public Health Administration. Very simply put, Melissa has a driving force to entering education for love for knowledge and being able to share that with others. she is also passionate, enthusiastic, and caring as is evident in her teaching as she strives to be the role model for others coming up in this field. Melissa is looking forward to the future of this amazing field and meeting new students each term. Mrs. Mocarski can be contacted directly through CANVAS messaging or via e-mail at Mmocarski@cbet.edu, during office hours, Monday through Friday, 0800-1700 CST.

Instructional Methods and Activities

The student online learning environment is structured to mirror the course syllabus and includes all the information students require to successfully navigate the course. The online learning environment referred to as CANVAS, provides a means for students to engage, communicate, and learn. CBET instructors will actively engage students in CANVAS via discussion board forums and other activities designed to cultivate student engagement and participation.

Online Classes (Daily). Students are expected to engage in CANVAS. Courses includes weekly assignments, quizzes, tests, and other requirements prescribed by the instructor. Students are responsible for completing weekly assignments in a timely manner as prescribed by the instructor(s). It is important to remember that in addition to the resulting grades, completion of weekly assignments is also used to measure student engagement, attendance, and participation

Weekly Live Webinars or Office Hour. Instructor-led webinars will be conducted the first week only. Webinars are optional. After the first week, pre-recorded webinar will be posted at the beginning of the week. Viewing early in the week is encouraged as they specifically cover challenging material specific to each week. After the first week, an office hour is held in place of the live webinar for students to bring specific questions about the week's material. If you do not have a specific question to ask, there is no need to attend the office hour. The office hour will end after 15 minutes if no students attend. If you have a specific question and will be more than 15 minutes late, email the professor at least one hour before the office hour begins.

Online Discussion Forum (daily/weekly). CANVAS includes a discussion board with weekly prompts and instructions for completing daily/weekly assignments. Students are required to respond to all weekly discussion board topics and instructor-directed prompts. Responses must be substantive and meet the minimum word count requirement. Additionally, students are required to engage with peers by responding to no fewer than two student responses per week. Student participation and attendance in CANVAS is reported to the Director of Education on a weekly basis and the information is used, in part, to measure attendance and participation in the course.

Late/Make-up work. All assignments must be completed on time and as instructed to receive full credit. Make-up work shall:

1. Be supervised by an instructor approved for the subject being made up.

2. Require the student to demonstrate the same knowledge or competence expected of a student who attended the scheduled class session.
3. No more than 5% of the missed work can be made up. All work must be completed and submitted within seven (7) calendar days of its original due date. All coursework must be submitted no later than six (6) calendar days after the course ends.

Week 1/Module 1 | Factorization, Fractions, and Mixed Numerals

Learning Objective 1. To learn about whole numbers and fractions and be able to perform basic mathematical manipulations.	
TLO 1	Define whole numbers and fractions
TLO 2	Demonstrate how to perform basic calculations with whole numbers and fractions
TLO 3	Define and demonstrate the Order of Operations
TLO 4	Demonstrate how to convert between number forms

Module 1 Overview. The first course module requires students to demonstrate understanding of whole numbers, perform basic calculations, define and correctly apply the Order of Operations, and convert between number forms.

Discussion Questions.

Discussion Question (DQ) 1 – *Find and critique one Khan Academy video related to this week’s subject matter. What did you learn? What could have been better explained? [Minimum 200-word response for full credit due THURSDAY of each week; at least two responses to your peers of 100-word minimum due by SUNDAY of each week]*

Webinar Session (Live). The Module 1 webinar will include a course overview and instructions to improve the student’s ability to access the materials, and how to be successful in the *Math for Electronics* course.

Assignments.

Assignment 1. Reading assignment (0 points) – Read chapters 1 through 3 of the *Basic College Mathematics* textbook.

Assignment 2. Webinar Quiz | (15 points, ONE attempt, untimed) – 5-question quiz that is straightforward.

Assignment 3. Exercises, Chapter 1 (15 points, UNLIMITED attempts, untimed) – “Whole Numbers”

Assignment 4. Exercises, Chapter 2 (15 points, UNLIMITED attempts, untimed) – “Fraction Notation – Multiplication and Division”

Assignment 5. Exercises, Chapter 3 (15 points, UNLIMITED attempts, untimed) – “Fraction Notation and Mixed Numerals”

Quiz.

Unit 1 Quiz. (100 points, TWO attempts, untimed) Between 19 and 25 questions covering the material presented in the reading, and webinar.

Late Assignments.

5% Daily Penalty. Late assignments are accepted and will receive a 5% daily late penalty.

Time-on-Task. The Time-on-Task for this module is 21 hours.

Week 2/Module 2 | Decimals, Ratios, Proportions, Percentages

Learning Objective 2. To define decimals, ratios, proportions and percentages, and demonstrate their difference and uses.	
TLO 1	Prime factorization trees
TLO 2	Ratios being part to part versus part to whole
TLO 3	Word problems help sheet in course textbook book
TLO 4	Word problems dissection
TLO 5	Simple and compounding interest and real-life examples

Module 2 Overview. The second course module requires students to understand prime factorization trees, ratios, how to translate and solve word problems, and how to use the simple and compounding interest formulas.

Discussion Questions.

Discussion Question (DQ) 1 – *Find and critique one Khan Academy video related to this week’s subject matter. What did you learn? What could have been better explained? [Minimum 200-word response for full credit due THURSDAY of each week; at least two responses to your peers of 100-word minimum due by SUNDAY of each week]*

Pre-recorded Webinar Posted Monday Morning. The Module 2 webinar will cover challenging topics from this week’s material. Viewing early in the week is encouraged as they specifically cover challenging material specific to each week.

Office Hour (Live). An office hour is held in place of the live webinar for students to bring specific questions about the week’s material. If you do not have a specific question to ask, there is no need to attend the office hour. The office hour will end after 15 minutes if no students attend. If you have a specific question and will be more than 15 minutes late, email the professor at least one hour before the office hour begins.

Assignments.

Assignment 1. Reading assignment (0 points) – Read chapters 4 through 6 of the *Basic College Mathematics* textbook.

Assignment 2. Webinar Quiz | (15 points, ONE attempt, untimed) – 5-question quiz that is straightforward.

Assignment 3. Exercises, Chapter 4 (15 points, UNLIMITED attempts, untimed) – “Decimal Notation”

Assignment 4. Exercises, Chapter 5 (15 points, UNLIMITED attempts, untimed) – “Ratio and Proportion”

Assignment 5. Exercises, Chapter 6 (15 points, UNLIMITED attempts, untimed) – “Percent Notation”

Quiz.

Unit 2 Quiz. (100 points, TWO attempts, untimed) Between 19 and 25 questions covering the material presented in the reading, and webinar.

Late Assignments.

5% Daily Penalty. Late assignments are accepted and will receive a 5% daily late penalty.

Time-on-Task. The Time-on-Task for this module is 20 hours.

Week 3/Module 3 | Geometry

Learning Objective 3. Define and be able to determine perimeter, area of basic shapes including 2D, 3D shapes, and use of the Pythagorean Theorem.	
TLO 1	Define perimeter and area of basic two- and three-dimensional shapes
TLO 2	Calculate the perimeter and area of basic two- and three-dimensional shapes

Module 3 Overview. The third course module will require student to be able to find, apply and manipulate geometric formulas to calculate perimeter and area of two- and three-dimensional shapes.

Discussion Questions.

Discussion Question (DQ) 1 – *Find and critique one Khan Academy video related to this week’s subject matter. What did you learn? What could have been better explained? [Minimum 200-word response for full credit due THURSDAY of each week; at least two responses to your peers of 100-word minimum due by SUNDAY of each week]*

Pre-recorded Webinar Posted Monday Morning. The Module 3 webinar will cover challenging topics from this week’s material. Viewing early in the week is encouraged as they specifically cover challenging material specific to each week.

Office Hour (Live). An office hour is held in place of the live webinar for students to bring specific questions about the week’s material. If you do not have a specific question to ask, there is no need to attend the office hour. The office hour will end after 15 minutes if no students attend. If you have a specific question and will be more than 15 minutes late, email the professor at least one hour before the office hour begins.

Assignments.

Assignment 1. Reading assignment (0 points) – Read chapter 9 of the *Basic College Mathematics* textbook.

Assignment 2. Webinar Quiz | (15 points, ONE attempt, untimed) – 5-question quiz that is straightforward.

Assignment 3. Exercises, Chapter 9 (15 points, UNLIMITED attempts, untimed) – “Geometry”

Quiz.

Unit 1 Quiz. (100 points, TWO attempts, untimed) Between 19 and 25 questions covering the material presented in the reading, and webinar.

Late Assignments.

5% Daily Penalty. Late assignments are accepted and will receive a 5% daily late penalty.

Time-on-Task. The Time-on-Task for this module is 18 hours.

Week 4/Module 4 | Real Numbers

Learning Objective 4. To define real numbers, and how to perform addition, subtraction, multiplication, and division with real numbers.	
TLO 1	Classification of numbers
TLO 2	Addition, subtraction, multiplication, and division of real numbers
TLO 3	Fractions with zero equaling zero versus being undefined
TLO 4	Absolute value
TLO 5	Additive Inverse versus Multiplicative Inverse/Reciprocal

Module 4 Overview. The fourth course module requires students to understand the classification of numbers (beyond whole numbers, only), and to perform more advanced calculations.

Discussion Questions.

Discussion Question (DQ) 1 – *Find and critique one Khan Academy video related to this week’s subject matter. What did you learn? What could have been better explained? [Minimum 200-word response for full credit due THURSDAY of each week; at least two responses to your peers of 100-word minimum due by SUNDAY of each week]*

Pre-recorded Webinar Posted Monday Morning. The Module 4 webinar will cover challenging topics from this week’s material. Viewing early in the week is encouraged as they specifically cover challenging material specific to each week.

Office Hour (Live). An office hour is held in place of the live webinar for students to bring specific questions about the week’s material. If you do not have a specific question to ask, there is no need to attend the office hour. The office hour will end after 15 minutes if no students attend. If you have a specific question and will be more than 15 minutes late, email the professor at least one hour before the office hour begins.

Assignments.

Assignment 1. Reading assignment (0 points) – Read chapter 10 of the *Basic College Mathematics* textbook.

Assignment 2. Webinar Quiz | (15 points, ONE attempt, untimed) – 5-question quiz that is straightforward.

Assignment 3. Exercises, Chapter 10 – Part A (15 points, UNLIMITED attempts, untimed) – “Real Numbers”

Assignment 4. Exercises, Chapter 10 – Part B (15 points, UNLIMITED attempts, untimed) – “Real Numbers”

Quiz.

Unit 1 Quiz. (100 points, TWO attempts, untimed) Between 19 and 25 questions covering the material presented in the reading, and webinar.

Late Assignments.

5% Daily Penalty. Late assignments are accepted and will receive a 5% daily late penalty.

Time-on-Task. The Time-on-Task for this module is 18 hours.

Week 5/Module 5 | Solving Expressions and Equations

Learning Objective 5. To learn how to manipulate and solve equations with unknown values.	
TLO 1	Solving algebraic expressions
TLO 2	Addition Principle
TLO 3	Multiplication Principle
TLO 4	Distributive Property

Module 5 Overview. The fifth course module requires students to exhibit an understanding of solving expressions and equations with an unknown value, and the ability to apply various mathematical principles and work with various mathematical properties.

Discussion Questions.

Discussion Question (DQ) 1 – *Find and critique one Khan Academy video related to this week’s subject matter. What did you learn? What could have been better explained? [Minimum 200-word response for full credit due THURSDAY of each week; at least two responses to your peers of 100-word minimum due by SUNDAY of each week]*

Pre-recorded Webinar Posted Monday Morning. The Module 5 webinar will cover challenging topics from this week’s material. Viewing early in the week is encouraged as they specifically cover challenging material specific to each week.

Office Hour (Live). An office hour is held in place of the live webinar for students to bring specific questions about the week’s material. If you do not have a specific question to ask, there is no need to attend the office hour. The office hour will end after 15 minutes if no students attend. If you have a specific question and will be more than 15 minutes late, email the professor at least one hour before the office hour begins.

Assignments.

Assignment 1. Reading assignment (0 points) – Read chapter 10 of the *Basic College Mathematics* textbook.

Assignment 2. Webinar Quiz | (15 points, ONE attempt, untimed) – 5-question quiz that is straightforward.

Assignment 3. Exercises, Chapter 10 (15 points, UNLIMITED attempts, untimed) – “Algebra: Solving Equations and Problems”

Assignment 4. Exercises, Chapter 10 (15 points, UNLIMITED attempts, untimed) – “Algebra: Solving Equations and Problems”

Quiz.

Unit 1 Quiz. (100 points, TWO attempts, untimed) Between 19 and 25 questions covering the material presented in the reading, and webinar.

Late Assignments.

5% Daily Penalty. Late assignments are accepted and will receive a 5% daily late penalty.

Time-on-Task. The Time-on-Task for this module is 18 hours.

Week 6/Module 6 | Final Review

Learning Objective 6. To review all covered material to further establish all covered concepts.	
TLO 1	Number classification
TLO 2	Fractions and mixed numerals
TLO 3	Decimals, ratios, proportions and percentages
TLO 4	Basic geometry
TLO 5	Basic algebraic expressions/equations

Module 1 Overview. The sixth course module requires students to demonstrate understanding of all material covered in the course including the classification of numbers, addition, subtraction, multiplication, and division of various classifications of numbers (including decimals, ratios, proportions and percentages), basic geometry, and how to solve expressions and equations by applying algebraic principles.

Discussion Questions.

Discussion Question (DQ) 1 – *Find and critique one Khan Academy video related to this week’s subject matter. What did you learn? What could have been better explained? [Minimum 200-word response for full credit due THURSDAY of each week; at least two responses to your peers of 100-word minimum due by SUNDAY of each week]*

Pre-recorded Webinar Posted Monday Morning. The Module 6 webinar will cover challenging topics from this week’s material. Viewing early in the week is encouraged as they specifically cover challenging material specific to each week.

Office Hour (Live). An office hour is held in place of the live webinar for students to bring specific questions about the week’s material. If you do not have a specific question to ask, there is no need to attend the office hour. The office hour will end after 15 minutes if no students attend. If you have a specific question and will be more than 15 minutes late, email the professor at least one hour before the office hour begins.

Assignments.

Assignment 1. Reading assignment (0 points) – Read chapters 1 through 3 of the *Basic College Mathematics* textbook.

Assignment 2. Webinar Quiz | (15 points, ONE attempt, untimed) – 5-question quiz that is straightforward.

Assignment 3. Exercises, Chapter 4 (15 points, UNLIMITED attempts, untimed) – “Decimal Notation”

Assignment 4. Exercises, Chapter 5 (15 points, UNLIMITED attempts, untimed) – “Ratio and Proportion”

Assignment 5. Exercises, Chapter 6 (15 points, UNLIMITED attempts, untimed) – “Percent Notation”

Exam.

Final Exam. (100 points, ONE attempt, untimed) 50-question comprehensive exam covering the material presented week 1 through week 5 of the course.

Late Assignments.

5% Daily Penalty. Late assignments are accepted and will receive a 5% daily late penalty.

Time-on-Task. The Time-on-Task for this module is 21 hours.

Note: Please remember to complete the end of course survey prior to the end of the last day of class.

Course Grade Distribution

Online Engagement	15%
Weekly Exercises	30%
Weekly Quizzes	30%
Final Exam	25%

Discussion Board Grading Criteria

Students are required to respond to all weekly discussion board topics and instructor-directed prompts. Responses must be substantive and meet the minimum word count requirement. Additionally, students are required to engage with peers by responding to no fewer than two peer-to-peer responses per week. The following rubric is used as a guide by instructors to evaluate and grade student responses to discussion questions and peer-to-peer engagement:

	Incomplete 0%	Partially complete 0-99%	Complete 100%
WEEKLY POST VIDEO LINK 10 points The post includes a link to the video the student viewed.	Does not include a link to the video.	This category is intentionally blank.	A working link to the video is provided.
WEEKLY POST The post is on topic and is at least 200 words in length.	Does not post assignment, or assignment is off topic.	The assignment is posted and on topic, but post falls short of the required word-count.	Post is on topic and meets/exceeds required word-count requirements.
TWO PEER REPLIES There are two peer replies commenting on the peer's posted video, and each response is at least 100 words in length.	Does not post replies.	The peer replies are posted and comment directly on peer's posted video, but post falls short of the required word-count.	The peer replies are posted, comment directly on peer's posted video, and meets/exceeds the required word-count.

Weekly Live Webinars or Office Hour

Instructor-led webinars will be conducted the first week only. Webinars are optional. After the first week, pre-recorded webinar will be posted at the beginning of the week. Viewing early in the week is encouraged as they specifically cover challenging material specific to each week. After the first week, an office hour is held in place of the live webinar for students to bring specific questions about the week's material. If you do not have a specific question to ask, there is no need to attend the office hour. The office hour will end after 15 minutes if no students attend. If you have a specific question and will be more than 15 minutes late, email the professor at least one hour before the office hour begins.

Final Exam

Each course will contain a capstone project or final exam. Capstone and final exams are worth no more than 30% of the student's overall grade in the course.

Grading System for the College of Biomedical Equipment Technology

A	90-100	4.0	F	59 & Below	0.0
B	80-89	3.0	W	Withdrawal	N/A
C	70-79	2.0	I	Incomplete	N/A
D	60-69	1.0	T	Transfer	N/A

To receive an incomplete "I", the student must petition the instructor for an extension to complete the required coursework. The student must be able to pass the course with the completed work and garner a grade of 70 or better. Incomplete grades that are not completed within 7 business days after the beginning of the next session will be converted to the existing grade earned in the course and will affect the student's GPA accordingly. CBET reserves the right to extend the time needed to fulfill the incomplete.

An "I" does not count towards the Grade Point Average (GPA) until a grade is assigned. A "W" is given when a student is dropped from the roster during the course and does not replace the previous grade(s). Grades of "W" and "F" are recorded in the academic transcript and reflected in the GPA. When a course is repeated after failure or withdrawal, the later grade will replace the first grade in calculating the CGPA. The clock hours of the course repetition are counted toward the maximum timeframe. CBET shall record a grade of "incomplete" for a student who withdraws but is not entitled to a refund if the student requests the grade at the time the student withdraws, and the student withdraws for an appropriate reason unrelated to the student's academic status.

A student must repeat a course in which a grade of "F" was received. A student can repeat each course once, however, once they reach 1.5 times the length of time required for graduation, they will be dropped from the program. If a student fails any course a second time, he/she will be dropped from the program. A failed course will be rescheduled for the earliest possible module at the discretion of the Director of Education. Students will be charged to retake the course.

Additional Resources and Points of Contact

Students requiring additional administrative support are encouraged to contact the Colleges Student Advocate, Mrs. Terri Gomez, at 210.233.1102 or via e-mail at tgomez@cbet.edu

For a complete list of administrative policies and regulations refer to the CBET Catalog at <https://cbet.edu/course-catalog>

NOTE: THE INSTRUCTOR RESERVES THE RIGHT TO MODIFY THIS SYLLABUS and COURSE OUTLINE