

Pitt State Pathway

(Undergraduate Course Numbers through 699)

Please check only one:

- Course is **currently** a “General Education” course.
- Course is listed in the current catalog, but is **NOT** a “General Education” course.
- New course that is **NOT** listed in the current catalog and has **NOT** been legislated through PSU Faculty Senate and/or KBOR.

A. Submission date: **February 18, 2019**

B. Department: **Technology & Workforce Learning**

C. College: **Choose an item.**

If two or more Colleges, please indicate which Colleges will be involved in teaching the course:
Click or tap here to enter text.

D. Name of faculty member on record for the course (may be Coordinating Professor or Chair):

Matthew Brown

(As faculty of record, I verify all sections agree to address the Core or Essential Studies Element and corresponding Learning Outcome as indicated below.)

E. Course prefix: **GT**

F. Course number: **190**

G. Credit hours: **2**

H. Title of course: **Introduction to Technological Systems**

Is this a change in the title of the course? **No**

(If “Yes,” a Revision to Course or New Course form will need to be completed and uploaded to the Preliminary Briefcase and will go through the legislation process.)

I. Will this course require a new course description? **No**

(If “Yes,” please insert new course description here. A Revision of Course or New Course form will need to be completed and uploaded to the Preliminary Briefcase and will go through the legislation process.)

Click or tap here to enter text.

J. Does this course include a co-requisite laboratory course: **No**

If “Yes”, please provide the co-requisite course name and number:

Click or tap here to enter text.

K. Will this course be available on-line: **No**

If “Yes”, please provide a detailed explanation: **Click or tap here to enter text.**

L. Semester(s) course will be offered (choose all that apply): **Fall and Spring**

M. Prerequisite(s): **None**

N. Co-requisite(s) —other than lab course named above: **None**

O. Select the *Pitt State Pathway Core Element* or *Essential Studies Element* based on the identified Learning Outcome to be covered in the course (choose only **one** set):
(Refer to definitions, hierarchy, and rubrics in the Pitt State Pathway document.)

Select Only One Element

- Communication
 - **Written Communication**.....
 - Students will communicate effectively.
- Communication
 - **Verbal Communication**.....
 - Students will communicate effectively.
- Quantitative/Analytic Methods and Scientific Literacy
 - **Quantitative/Analytic Methods**.....
 - Students will analyze data logically.
- Global Understanding and Civic Engagement
 - **Human Experience within a Global Context**.....
 - Students will explore global systems conscientiously.
- Global Understanding and Civic Engagement
 - **Human Systems within a Global Context**.....
 - Students will explore global systems conscientiously.
- Global Understanding and Civic Engagement
 - **Natural World within a Global Context**.....
 - Students will explore global systems conscientiously.
- Personal and Professional Behavior
 - **Wellness Strategies**.....
 - Students will model productive behaviors purposefully.

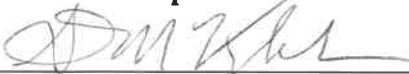
P. Will the course address a **Companion Element**? **Yes**
(Refer to definitions, hierarchy, and rubrics in the Pitt State Pathway document.)

If "Yes," please select one: Social Responsibility within a Global Context

Q. What is the highest anticipated level of student achievement for the stated learning outcome(s) common across all sections of the course? Note: Sample assessment strategies will be submitted on the representative syllabus. Milestone I
(Refer to definitions, hierarchy, and rubrics in the Pitt State Pathway document.)

R. Please submit course syllabus as an attachment, highlighting the following items: course objectives related to Learning Outcome(s), assessment strategies (e.g. exams, course project, etc.), and/or sample assessment tool(s) to be used to measure student achievement.
Click or tap here to enter text.

Legislative Process
Authorization and Notification Signatures
(Electronic signatures accepted)

Department Chairperson Approved Not Approved
 _____ 2/18/19 _____
Department Chairperson Signature Date

Faculty Senate General Education Committee..... Approved Not Approved

Faculty Senate General Education Chairperson Signature Date

Faculty Senate..... Approved Not Approved

Faculty Senate Recording Secretary Signature Date

Note: Each College curriculum representative will notify their respective College and Department(s) of the completion of the approval process.

*Originating Department: Please **complete** the entire form, acquire the Chairperson's signature, and email to psupathway@pittstate.edu.



**COLLEGE OF TECHNOLOGY
PITTSBURG STATE UNIVERSITY
Fall 2019**

Course Number:	GT 190-02,03,04,05	Title:	Introduction to Technological Systems
Credit Hours:	2	Course Time Schedule:	8:00/9:30/11:00 a.m./2:00 p.m. TTH
Instructor:	Matthew Brown	email:	mbrown@pittstate.edu
Office:	S206 KTC	Office Phone:	(620) 235-4023
Office Hours:	Monday: 9:00 a.m. – 12:00 p.m. 1:00 p.m. – 2:00 p.m.	Wednesday:	8:00 a.m. – 12:00 p.m. 1:00 p.m. – 2:00 p.m.
	Tuesday: 7:30 a.m. - 8:00 a.m. 9:00 a.m. - 9:30 a.m. 10:30 a.m. - 11:00 a.m.	Thursday:	9:00 a.m. - 9:30 a.m. 10:30 a.m. - 11:00 a.m.
	Friday: 10:00 a.m. – 11:30 a.m. or by appointment (phone or e-mail)		

COURSE DESCRIPTION

An introductory study of the systems of technology as applied in Communication, Manufacturing, Construction, Power/Energy/Transportation, and Bio-Related technologies; including their organization, techniques, resources, products, evolution and impact on society **in a global context**. Format is primarily lecture, guest speakers, assignments and tests.

PREREQUISITE

None

PURPOSE OF THE COURSE

The purpose of this course is to provide students with information and experiences that will make them more technologically literate.

PITT STATE PATHWAY OBJECTIVES

Learning Outcome: Students will explore global systems conscientiously.

Essential Studies Element: This course meets the Pitt State Pathway essential studies element **Human Systems within a Global Context** at the assessment level **Milestone I**.

Humans have developed complex systems that structure interaction. It is important to understand how and why these systems developed, change through time, vary by location, and are interconnected at all levels (local/regional/global), and the implications of that interconnectedness. Competency in this element means:

- *Analyzing* the structure, development, and change of human economic, political, social and/or cultural systems over time;
- *Analyzing* the individual's role and responsibility to society at all levels;
- *Evaluating* how human systems are interconnected at all levels.

Companion Element: This course includes a companion element to the Pitt State Pathway in **Social Responsibility within a Global Context** at the assessment level **Milestone I**.

Social responsibility within a global context is the ability to recognize one's accountability to society – locally, nationally, and globally. This incorporates the importance of active citizenship through the application of concepts such as equity, inclusiveness, collaboration, and building constituency in government, civic institutions, business, and community at large. Competency in this element means:

- *Applying* the concepts associated with active, responsible citizenship;
- *Analyzing* the ethical, social & environmental consequences of local, national, and global organizations;
- *Analyzing* the historical consequences of local or national decisions on global systems.



COURSE OBJECTIVES and PITT STATE PATHWAY STUDENT LEARNING OUTCOMES:

Upon completion of the course, in a global context students should be able to:

1. Explain human organizational systems using a variety of disciplinary and interdisciplinary perspectives.
2. Explain the roles and responsibilities of citizens at all levels.
3. Recognize and explain the pervasiveness of technology in everyday life. (K1)
4. Explain basic engineering concepts & terms such as systems, constraints, and trade-offs. (K2)
5. Describe the nature of limitations of the engineering design process (K3)
6. Describe some of ways technology has shaped human history and how people have shaped technology (K4)
7. Identify that all technology entails risk, only some of which can be anticipated (K5)
8. Appraise the development and use of technology using concepts like trade-offs, costs, and benefits. (K6)
9. Describe how technology reflects the values and culture of society (K7)
10. Perform as competent and responsible technologically literate people as they carry out their daily functions as an informed consumer, user and citizen. (C1, C2, C3)
11. Apply basic mathematical concepts related to probability, scale, and estimation to make informed judgments about technological risks and benefits. (C3)
12. Use the design-thinking process to solve a problem encountered in daily life (C4)
13. Assess information about technological issues of concern from a variety of sources (C5)
14. Develop pertinent questions, of self and others, regarding the benefits and risks of technologies (CT&DM1)
15. Evaluate available information about the benefits, risks, costs, and trade-offs of technology in a systematic way (CT&DM2)
16. Participate, when appropriate, in decision about the development and uses of technology (CT&DM3)

REQUIRED TEXT AND MATERIALS

1. Wright, T.R., Strimel, G.J., Grubbs, M.E., (2019) Foundations of Engineering and Technology 7th ed. Tinley Park, Illinois Goodheart-Wilcox. ISBN 978-1-63126-886-1 (Textbook)
2. (For the Fall 2018 semester, the Library has purchased two copies of the required GT 190 textbook for students to place on reserve at the KTC Library (S 221). Each textbook will be available for a two-hour checkout during the KTC Library hours of operation (Sunday: 6:00-10:00 p.m., Monday – Thursday: 8:00 a.m. – 10:00 p.m. & Friday: 8:00 a.m. – 5:00 p.m.). This isn't to discourage students from acquiring their own copy of the textbook, but simply, to support student success in every possible way.
3. **1 - 1" three ring presentation binder** (for supplementary resource materials, handouts, and notes) [Recommended]

INSTRUCTIONAL RESOURCES

1. Haller, C. & Thompson, E. (2004). *Technology–today and tomorrow, teacher's resource binder 5th ed.* New York, NY: Glencoe Division of MacMillan/ McGraw-Hill Publishing Co. [handouts, color transparencies, worksheets, etc.]
2. Periodicals and books in libraries; information sheets; other video presentations and visual aids; and lab material and equipment.



TEACHING STRATEGIES/METHODS

To achieve the instructional objectives of the course, the instructor will employ lecture, discussion, demonstrations, and student oral and written responses. In addition the instructor will rely on the PSU online CANVAS system to help supplement classroom instruction, and the instructor **may** also employ some combination of other instructional methods including but not limited to:

- technology-related in-class activities
- problem solving/creative thinking
- worksheets
- outside-class computer activities
- cooperative learning methods
- outside speakers
- video presentations
- integrated academics
- out-of-class responses and readings
- online course supplementation

REQUIREMENTS FOR COURSE

Successful completion of tests, final, and related assignments.

GENERAL SAFETY RULES:

1. Accept the “zero accident” philosophy when working with and around technology.
2. Approved hardhats, safety glasses, hearing protection and/or shoes should be worn anytime necessary, and approved safety glasses must be worn in all KTC labs.
3. All clothing worn should be in accordance with general work and safety practices such as:
 - Do not wear clothing that could get caught in machinery or otherwise cause an accident (such as dragging or baggy pants, torn or loose long sleeves, loose neck jewelry and rings).
 - Shirts with sleeves are to be worn at all times and must cover the shoulders and torso.
 - Tank tops and football type net shirts are not acceptable.
 - Pants must be full length (no cut-offs or shorts).
 - Shoes or boots must be of sturdy leather, thick-soled and cover the ankle.
 - Dress shoes, athletic shoes or sandals are not acceptable.
4. Use tools, equipment, and personal protective equipment the way they were designed.
5. Inspect tools and equipment prior to use.
 - Do not use damaged or unsafe tools and equipment. Damaged tools and equipment shall be removed from service until fully repaired or replaced.
6. Only perform tasks for which you have been trained.
7. Correct or report all unsafe conditions immediately to a course instructor.
8. Everyone has the right to refuse to perform work which is believed to be unsafe. Explain your concerns to a course instructor.
9. Good housekeeping requires the attention and cooperation of all involved. Pick up tools, store materials properly, and pick up trash daily.
10. Safety is everybody’s business. Suggestions are welcomed and shall be directed to the course instructor.

EVALUATION/ASSESSMENT STRATEGIES - Grades will be awarded strictly based on total points earned, not by percentage. Overall Evaluation (Grades will be reported on Canvas)

The tests, final, and in and out-of-class assignments are a form of assessment, designed to help the student learn, reinforce and practice the course objectives. The tests, final, and in and out-of-class assignments are assessment tools designed to evaluate the student’s ability to recall, intelligently communicate and demonstrate understanding of the stated Course Objectives and Pitt State Pathway Student Learning Outcomes, at the Milestone I level. The tests, final, and in and out-of-class assignments will require students to explain Human Systems within a Global Context, relating to various technological systems, using a variety of disciplinary and interdisciplinary perspectives all within a global context.

1. The student is graded on ability to answer questions on objective tests.
2. The student is evaluated on the completion and quality of in and out-of-class assigned work.
3. The student is judged on basis of participation in class and cooperation in activities and quizzes.



EVALUATION/ASSESSMENT STRATEGIES CRITERIA

Grading System

Tests 1, 2, & 3 (75 pts. each)	= 225 points – 30% of Overall Grade	750 – 672 points	100-89.5% = A
Out-of-Class Assignments	= 225 points – 30% of Overall Grade	671 – 597 points	89.4-79.5% = B
In-class Assign. & Quizzes	= 200 points – 27% of Overall Grade	596 – 522 points	79.4-69.5% = C
Final	= 100 points – 13% of Overall Grade	521 – 447 points	69.4-59.5% = D
TOTAL	= 750 points	446 – 0 points	59.4-0% = F

Notes concerning evaluation criteria:

1. **Attendance:** There **are no excused or unexcused absences**. Students are expected to be “on time” and ready to begin class at the published start time for the class. Late arrivals and early departures will be counted as absent. Students are expected to attend class regularly. More than 3 absences is considered excessive in a class that meets 2 days per week. **Students with excessive absences may be dropped.** Students **may attend a different class** covering the same topic to make-up absences, but **prior arrangements must be made with the instructor.**
1. **Tests:** Tests will be administered online using Canvas. Online Canvas tests are open book and open note and can be taken as many times as the student would like with the last **COMPLETED** score being the student’s final grade on the test. Students are required to complete each test by the due date and time listed in the course schedule. If the test is not completed within the allotted time, a **Zero (0)** will be entered as the grade. Numerous computer labs are available on campus; therefore, no computer or problems with your personal computer are **UNACCEPTABLE** excuses.
2. **Final:** A written, **IN-CLASS, COMPREHENSIVE** final will be given during finals week. The final will be a no laptop/tablet/phone, closed book, closed notes 100 point test, and students may attend any of the final times identified on the course schedule. **Finals will NOT be given early, or in the instructor’s office or at any other times than those identified on the course schedule.** The instructor will provide the ScanTron© and paper final. All the student needs to bring is a #2 pencil.
3. **Out-of-Class Assignments:** All out-of-class assignments are expected to be completed **individually** and not in violation of the academic misconduct policy set forth by the university. Out-of-class assignment due dates are listed in course schedule, and out-of-class assignments will be submitted at the beginning of class in hard copy and/or in electronic form through Canvas as indicated in the course schedule. Out-of-class assignments turned in later than the due date indicated in the course schedule will be considered late. **Late assignments will be reduced by 50%.** Out-of-class assignments may be turned in early.
4. **In-Class Assignments & Quizzes:** During certain class periods, multiple choice, fill in the blank, matching, and short answer in-class assignments and quizzes worth between 5 and 10 points will be given over previously covered or daily lecture material. These in-class assignments and quizzes will be open note and open book and will be designed to check each student’s comprehension of course the material in class. Also these in-class assignments and quizzes will give students an idea of what types of questions to expect on the unit tests and final. If the student misses an in-class assignment or quiz, the student can attend a different class period covering the same topic to make up the in-class assignment or quiz, but arrangements **MUST** be made with the instructor **PRIOR** to attendance. **Under NO other circumstances can in-class assignments and quizzes be made up or turned in late for credit.**
5. **Extra Credit Assignments:** There will be a few extra credit opportunities throughout the semester explained in detail as those extra credit opportunities become available, but no extra credit points will be figured into the student’s grade until after the last final is given for all classes on **Dec. 13th**.



6. **Class Writing Policy:** When submitting any response (be it a discussion post, an essay, a homework answer, etc.) the student must use complete sentences and proper spelling and grammar. Common errors include: misspellings, forgetting to capitalize the beginning of a sentence, forgetting to capitalize the letter “I” in reference to yourself, etc. Students should always run a “spellcheck” and carefully review responses before submitting an assignment. **The student will lose available points for writing errors.** For assistance with the basics of writing, please to go the PSU Writing Center located at 210 Hartman Hall, contact them at 620-235-4694 or schedule a visit at www.pittstate.mywconline.com.

PSU Writing Center: 112 Axe Library

Email: writingcenter@pittstate.edu

Schedule an appointment: Monday – Thursday 9:00 a.m. – 6:00 p.m.

Walk-ins Welcome: Monday – Thursday 6:00 p.m. – 10:00 p.m.

Additional Information:

- If a student is absent for whatever reason, it is the student’s responsibility to get notes off Canvas, from other students or from the instructor. Also if a student is absent for whatever reason, it is the student’s responsibility to have out-of-class assignments and tests completed and/or turned in on time according to the dates listed in the course schedule.
- Only electronic devices being used for in-class activities or assignments are allowed to be used during class. If the student is not using an electronic device for a class activity or assignment, it needs to be put away. Cell phones must be placed on silent when class begins.
- Announcements, reminders, notifications, and grades will be posted on CANVAS regularly.
- **Cheating and plagiarism will not be tolerated. Students are expected to complete assignments individually and responses should be “in your own words”. Students failing to follow the guidelines of academic conduct may receive an F for the course.** Plagiarism is defined as using ideas or writings of another and claiming them as one’s own. Copying any material directly (be it the work of other students, professors, or colleagues) or copying information from print or electronic sources (including the internet) without explicitly acknowledging the true source of the material is plagiarism. Plagiarism also includes paraphrasing other individuals’ ideas or concepts without acknowledging their work, or contribution. To avoid charges of plagiarism, students should follow the citation directions provided by the instructor and/or department in which the class is offered.
 - For more information regarding Academic Integrity, please refer to http://catalog.pittstate.edu/contentm/blueprints/blueprint_display.php?bp_listing_id=162&blueprint_id=124&sid=1&menu_id=7980
- Additional semester information about (including the following Academic Integrity Policy link above and the Weapons and Concealed Carry Policy link below), campus resources, expectations, notifications, severe weather, grades, semester important dates, the approved Dead Week Policy, etc. can be found at:

<https://www.pittstate.edu/registrar/files/documents/syllabus-supplement-fall-2018>

Weapons and Concealed Carry Policy:

Weapons Policy website <https://www.pittstate.edu/police/policies.html#undefined1> & <https://www.pittstate.edu/police/policies.html#undefined2> and Concealed Carry Weapons Policy <https://www.pittstate.edu/police/files/documents/Concealed-Carry-Weapons-Policy.pdf>

The handgun must be in the person's custody & control at all times with safety mechanism engaged. Handguns must be carried securely in a suitable carrier (backpack, purse, handbag, or other personal carrier designed and intended for the carrying of an individual's personal items). The suitable carrier must at all times remain within the exclusive and uninterrupted control of the individual. This includes wearing the carrier with one or more straps consistent with the carriers design, carrying or holding the carrier, or setting the carrier next to or within the immediate reach of the individual.



COURSE CONTENT

I. Introduction to Technology

- A. What is the Definition of Technology?
- B. Problem Solving & Engineering Design
 - 2. Problem Solving Process
 - 3. Engineering Design

II. Careers and Opportunities in Technology

III. Communication Technology

- A. Communication Systems – Definition, Description, Systems Model, History, Impacts, Trends
- B. Information Technology – Word Processing, Desktop Publishing, CAD and Graphics, Internet
- C. Graphic Communication – Visual Design, Printing, Photography, Drafting/Design
- D. Electronic Communication – Telephone, Radio, Television, Satellite Communication Systems

IV. Manufacturing Technology

- A. Manufacturing Systems – Definition, Description, Systems Model, History, Impacts, Trends
- B. Production & Modern/Emerging Manufacturing Techniques & Technologies
- C. Manufacturing Materials & Processes
- D. Product Design & Development

V. Environment & Technology

- A. Green Technology
- B. Goals of Green Technology

VI. Construction Technology

- A. Construction Systems – Definition, Description, Systems Model, History, Impacts, Trends
- B. People in Construction & Financial Terms for the Future Homeowner
- C. Preparing & Managing Construction
- D. Building Homes and Other Structures
- E. Other Construction Projects

VII. Power & Energy Technology

- A. Definitions of Energy, Power & Work & Forms of Energy & Power
- B. Different Types of Energy Sources

VIII. Transportation Technology

- A. Transportation Systems – Definition, Description, Systems Model, History, Impacts, Trends
- B. Types and Modes of Transportation – Air/Space, Water, Land & Intermodal Transportation
- C. Vehicle Automotive Technology Literacy for Consumers
- D. Alternative & Renewable Fuels

IX. Bio-Related Technologies

- A. Bio-Related Systems – Definition, Description, Systems Model, History, Impacts, Trends
- B. Applications of Bio-Related Medical Technology
- C. Applications of Bio-Related Agriculture Technology
- D. Ergonomic & Bio-Related Waste Management

X. Technological Literacy for All Americans

- A. What is technological literacy?
- B. Why should we be technologically literate?