INDIANA AREA SCHOOL DISTRICT INDIANA, PA

Course Title: Communicating in a STEM World

Grade Level: 12

Course Number:

Core or Elective: Core Elective

Periods Per Week: 5

Length of Time: 39 minutes

Length of Course: 18 weeks

Units of Credit:

Revision Date: 2018

Course Description: This is a one semester, portfolio building class which will emphasize critical reading and writing skills for Seniors intending to pursue STEM majors in college and/or those pursuing STEM vocational careers. The course will begin with an essentials of grammar unit, and then students will begin building their own unique portfolios based on their post secondary interest. Major units of study include personalized career development writing, practical correspondence, writing manuals and directions, and writing research reports and/or project proposals. The course concludes with a capstone project based on a student identified area of interest. Other assessments will include, but will not be limited to, research papers, technical articles and scientific and mathematical-based expository, narrative and persuasive pieces.

Expected Level of Achievements (District Grading Scale)

A (4): 93% - 100% B (3): 85% - 92% C (2): 77% - 84% D (1): 69% - 76% F (0): 68% and below Subject Area: English Course Title: Communicating in a STEM world

Grade: 12 Strand1: Essentials of Grammar

Academic/Content	Objectives	Instructional Strategies	Assessment Strategies
Standards/ Benchmarks			
The student will:	The student will:		
CC.1.4.11-12.B	Demonstrate an	PIIC Strategies	Daily formative assessments
Write with a sharp distinct focus	understanding of basic and		Paragraph writing
identifying topic, task, and	traditional grammar	Students will write narratives	Teacher questioning
audience.		with focus areas for different	Class discussions
	Demonstrate an	grammatical requirements	Summative assessment – test
CC.1.4.11-12.D	understanding of how to use		on editing techniques and
Organize complex ideas,	the standards of traditional	Students will practice editing	grammar
concepts, and information so	and standard grammar	techniques on academic and	
that each new element builds on	requirements in short pieces	technical pieces.	
that which precedes it to create	of narrative writing	,c	
whole; use appropriate and		Practice specific areas of need	
varied transitions and syntax to	Explore editing techniques	using www.noredink.com	
link the major sections of the	I In deveto a decrease		
text; provide a concluding statement or section that	Understand common		
supports the information	grammatical mistakes and how to correct them in		
presented; include formatting	everyday, academic and		
when useful to aiding	professional writing		
comprehension.	professional writing		
comprehension.			
CC.1.4.11-12.E			
Write with an awareness of the			
stylistic aspects of composition.			
CC.1.4.11-12.F			
Demonstrate a grade			

appropriate		
command of the conventions of		
standard English grammar,		
usage, capitalization,		
punctuation, and spelling.		

Materials/Resources	Reteaching The student will:	Enrichment The student will:
Successful Writing at Work by Philip C.	Look for secondary source documents to	Additional articles, film clips and notes
Kolin	assist in understanding	would be available for enrichment
<u>Technical Communication</u> by John Lannon		
and Laura Gurak	After class/school discussion with teacher	Opportunities for students to contact
Promethean Board		professionals in their field of interest.
Teacher made materials	Additional information on subject to assist	
Chromebooks	in understanding	
Noredink.com premium		

Subject Area: English Course Title: Communicating in a STEM world

Grade: 12 **Strand 2: Practical Correspondence**

Academic/Content	Objectives	Instructional Strategies	Assessment Strategies
Standards/ Benchmarks			
The student will:	The student will:		
CC.1.4.11-12.B	Develop a working	Students will view and analyze	PIIC Strategies
Write with a sharp distinct focus	understanding of elements of	multiple resumes, cover letters,	Formative assessments
identifying topic, task, and	promoting oneself through	and thank you letters.	Class discussions
audience.	writing and speech		Evaluation sheets
		Students will use technical	Resume, Cover Letter, and
CC.1.4.11-12.C		information to create a speech	Thank You Letter Rubrics
Develop and analyze the topic	Use technical information and	with visual aids that is	Interview Rubrics
thoroughly by selecting the most	rhetorical strategies to answer	accessible to multiple audiences.	
significant and relevant facts,	interview questions		
	-		

extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic; include graphics and multimedia when useful to aiding comprehension.

CC.1.4.11-12.E

Write with an awareness of the stylistic aspects of composition.

CC.1.4.11-12.F

Demonstrate a grade appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.

CC.1.4.11-12.K

Write with an awareness of the stylistic aspects of composition.

CC.1.5.11-12.A

Initiate and participate effectively in a range of collaborative discussions on grades level topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

CC.1.5.11-12.B

Evaluate their own written and oral materials and those of others.

Create their own resume, cover letter, and thank you letter.

Perform an interview as both the hirer and the job seeker. Students will watch model interviews and have a Q & A with a guest speaker.

Evaluate how the speaker's perspective, reasoning, and use of evidence and rhetoric affect the credibility of an argument through the author's stance, premises, links among ideas, word choice, points of emphasis, and tone.		
CC.1.5.11-12E Adapt speech to a variety of contexts and tasks.		
CC.1.5.11-12.G Demonstrate command of the conventions of standard English when speaking based on grade 11-12 level and content.		

Materials/Resources	Reteaching The student will:	Enrichment The student will:
Elements of Technical Writing by Gary	Look for secondary source documents to	Additional articles, film clips and notes
Blake and Robert W. Bly	assist in understanding	would be available for enrichment
The Elements of Style by Strunk and		
White	After class/school discussion with teacher	
Successful Writing at Work by Philip C.		
Kolin	Additional information on subject to assist	
Technical Communication by John Lannon	in understanding	
and Laura Gurak		
Guest Speaker(s)relevant to topic and		
student needs.		
Local and regional field trips relevant to		
topics and student needs.		
Promethean Board		

Chromebooks	
Teacher made materials	
YouTube videos as needed	
www.noredink.com	

Subject Area: English Course Title: Communicating in a STEM world

Grade: Strand 3: Medium and Message

Academic/Content	Objectives	Instructional Strategies	Assessment Strategies
Standards/ Benchmarks			
The student will:	The student will:		
CC.1.4.11-12.A	Understand the meaning of	Read and analyze how the	PIIC strategies
Write informative/ explanatory	"The Medium is the Message"	medium of a message effects	Rubrics for compositions
texts to examine and convey		meaning.	Objective quiz
complex ideas, concepts, and	Compose messages for		
information clearly and	different audiences, purposes,	Write similar content but for	
accurately.	and mediums.	different purposes and	
'		audiences.	
CC.1.4.11-12.B	Demonstrate public speaking		
Write with a sharp distinct focus	skills in different contexts.	Read sample memos, emails,	
identifying topic, task, and		and other correspondence to	
audience.	Write summaries of relevant	serve as models.	
	journal articles.		
CC.1.4.11-12.C	, , , , , , , , , , , , , , , , , , , ,	Practice note taking skills during	
Develop and analyze the topic	Compose a proposal for	group meeting simulations.	
thoroughly by selecting the most	Capstone Project	group mouning amananan	
significant and relevant facts,			
extended definitions, concrete			
details, quotations, or other			
information and examples			
appropriate to the audience's			

knowledge of the topic; include graphics and multimedia when useful to aiding comprehension.		
CC.1.4.11-12.E Write with an awareness of the stylistic aspects of composition. CC.1.4.11-12.F Demonstrate a grade appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.		
CC.1.4.11-12.Q Write with an awareness of the stylistic aspects of writing.		
CC.1.4.11-12.T Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.		
CC.1.4.11-12.U Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments and information.		

CC.1.4.11-12.W

_		
ŀ	Gather relevant information	
1	from multiple authoritative print	
1	and digital sources, using	
	advanced searches effectively;	
1	assess the strengths and	
	limitations of each source in	
1	terms of the task, purpose, and	
1	audience; integrate information	
	into the text selectively	
	to maintain the flow of ideas,	
1	avoiding plagiarism and	
1	over reliance on any one source	
	and following a standard format	
	for citation.	
1	CC.1.5.11-12.D	
	Present information, findings,	
	and supporting evidence,	
	conveying a clear and distinct	
	perspective; organization,	
	development, substance, and	
	style are appropriate to purpose,	
	audience, and task.	

Materials/Resources	Reteaching The student will:	Enrichment The student will:
Successful Writing at Work by Philip C.	Look for secondary source documents to	Additional articles, film clips and notes
Kolin	assist in understanding	would be available for enrichment
<u>Technical Communication</u> by John Lannon		
and Laura Gurak	After class/school discussion with teacher	
Guest Speaker(s)relevant to topic and		
student needs.	Additional information on subject to assist	
Local and regional field trips relevant to	in understanding	
topics and student needs.		

Subject Area: English Course Title: Communicating in a STEM world

Grade: 12 Strand 4: Writing Instruction, Procedures, Manuals

Academic/Content Standards/ Benchmarks	Objectives	Instructional Strategies	Assessment Strategies
The student will:	The student will:		
CC.1.2.11-12.B Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences and conclusions based on and related to an	Articulate why writing clear directions is important. Design effective directions, procedures, and manuals for a variety of tasks, purposes, and audiences.	Students will read, discuss, and analyze example directions. Students will test their own directions and peer-review those written by others.	PICC strategies Class Discussions Paper Rubrics Oral Presentation Rubrics Quizzes
author's implicit and explicit assumptions and beliefs. CC.1.2.11-12.C Analyze the interaction and	Understand how to use language clearly and distinctly Create visuals when	Students will examine user manuals and offer suggestions for improvement	
development of a complex set of ideas, sequence of events, or specific individuals over the course of the text.	appropriate Experience the design process - Plan, draft, trial, revise, and reflect- as a writer and a	Collaborate to create a set of directions and a user manual.	
CC.1.2.11-12.D Evaluate how an author's point of view or purpose shapes the content and style	subject.		

of a text. CC.1.2.11-12.E Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging. CC.1.2.11-12.F Evaluate how words and phrases shape meaning and tone in texts. CC.1.2.11-12.G Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem. CC.1.2.11-12.J Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college

gathering vocabulary

and career readiness level; demonstrate independence in

knowledge when considering a word or phrase important to comprehension or expression. CC.1.2.11-12.L Read and comprehend literary non-fiction and informational text on grade level, reading independently and proficiently. CC.1.3.11-12.A ...provide an objective summary of the text. CC.1.3.11-12.B Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences and conclusions based on and related to an author's implicit and explicit assumptions and beliefs. CC.1.3.11-12.D Evaluate how an author's point of view or purpose shapes the content and style of a text. CC.1.3.11-12.E

including how specific

Evaluate the structure of texts

sentences, paragraphs and larger portions of the texts

relate to each other and the whole.		
CC.1.4.11-12.A Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately.		
CC.1.4.11-12.B Write with a sharp distinct focus identifying topic, task, and audience.		
CC.1.4.11-12.C Develop and analyze the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic; include graphics and multimedia when useful to aiding comprehension.		
CC.1.4.11-12.D Organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create whole		

Write with an awareness of the

CC.1.4.11-12.E

stylistic aspects of composition. CC.1.4.11-12.P Create a smooth progression of experiences or events using a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome; provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative. CC.1.4.11-12.U Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments and information. CC.1.4.11-12.X Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes and audiences.

Initiate and participate effectively in a range of

CC.1.5.11-12.A

gra tex oth the	laborative discussions on ades level topics, ats, and issues, building on ners' ideas and expressing eir own clearly and rsuasively.
Intinformation in the information vis quality and solution in the information in the info	egrate multiple sources of cormation presented in diverse mats and media (e.g. ually, antitative, orally) in order to ake informed decisions and ve problems, evaluating the edibility and accuracy of each curce and noting any accepancies among the data.
Pre and cor per dev sty	esent information, findings, d supporting evidence, nveying a clear and distinct rspective; organization, velopment, substance, and rle are appropriate to purpose, dience, and task.
Ma me	1.1.5.11-12.F lke strategic use of digital edia in presentations to add erest and enhance

understanding of findings, reasoning, and evidence.

Materials/Resources	Reteaching The student will:	Enrichment The student will:
Successful Writing at Work by Philip C. Kolin	Look for secondary source documents to assist in understanding	Additional articles, film clips and notes would be available for enrichment
<u>Technical Communication</u> by John Lannon and Laura Gurak	After class/school discussion with teacher	
Guest Speaker(s)relevant to topic and student needs.	Additional information on subject to assist	
Local and regional field trips relevant to topics and student needs.	in understanding	
Chromebooks Videos		
Teacher made materials Sample directions and manuals		

Subject Area: English Course Title: Communicating in a STEM world

Grade: 12 Strand 5: Research and Reporting

Academic/Content Standards/ Benchmarks	Objectives	Instructional Strategies	Assessment Strategies
The student will:	The student will:		
CC.1.2.11-12.G Integrate and evaluate multiple sources of	Create documents that demonstrate an objective point of view based on data	Identify, review, and assess a research report.	PIIC Activities Classroom Discussions Paper Rubrics
information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve	and sound research principles Evaluate and identify sources of valid information that are suitable for varied audiences.	Students work collaboratively on gathering data, composing a report, and presenting their findings to the class.	Oral Presentation Rubrics

a problem.	Create research reports based
	on selected data sets
CC.1.2.11-12.J	
Acquire and use accurately	Create and deliver classroom
general academic and	presentations
domain-specific words and	
phrases, sufficient for	
reading, writing, speaking,	
and listening at the college	
and career readiness level; demonstrate independence in	
gathering vocabulary	
knowledge when considering	
a word or phrase important	
to comprehension or	
expression.	
CC.1.4.11-12.A	
Write informative/ explanatory	
texts to examine and convey	
complex ideas, concepts, and	
information clearly and	
accurately.	
CC.1.4.11-12.B	
Write with a sharp distinct focus	
identifying topic, task, and	
audience.	
CC.1.4.11-12.C	
Develop and analyze the topic	
thoroughly by selecting the most	
significant and relevant facts,	
extended definitions, concrete details, quotations, or other	
information and examples	
I IIIOITTIAUOTT ATIU EXAMPLES	

appropriate to the audience's knowledge of the topic; include graphics and multimedia when useful to aiding comprehension.

CC.1.4.11-12.D

Organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create whole; use appropriate and varied transitions and syntax to link the major sections of the text; provide a concluding statement or section that supports the information presented; include formatting when useful to aiding comprehension.

CC.1.4.11-12.J

Create organization that logically sequences claim(s), counterclaims, reasons, and evidence; Use words, phrases, and clauses as well as varied syntax to link the major sections of the text create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims; provide a concluding statement or section that follows from and supports the argument

presented. CC.1.4.11-12.K Write with an awareness of the stylistic aspects of composition. • Use precise language, domain specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. • Establish and maintain a formal style and objective tone while attending to the norms of the discipline in which they are writing. • Establish and maintain a formal style. CC.1.4.11-12.P Create a smooth progression of experiences or events using a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome; provide a conclusion that follows from and reflects on what is experienced, observed, resolved over the course of the narrative. CC.1.4.11-12.U Use technology, including the

Internet to produce, publish,

and update individual or shared writing products in response to ongoing feedback, including new arguments and information.

CC.1.4.11-12.W

Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and over reliance on any one source and following a standard format for citation.

CC.1.4.11-12.X

Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes and audiences.

CC.1.5.11-12.A

Initiate and participate effectively in a range of collaborative discussions on grades level topics, texts, and issues, building on others' ideas

and expressing their own clearly and persuasively.		
CC.1.5.11-12.C Integrate multiple sources of information presented in diverse formats and media (e.g. visually, quantitative, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.		
CC.1.5.11-12.D Present information, findings, and supporting evidence, conveying a clear and distinct perspective; organization, development, substance, and style are appropriate to purpose, audience, and task.		
CC.1.5.11-12.F Make strategic use of digital media in presentations to add interest and enhance understanding of findings, reasoning, and evidence.		

Materials/Resources	Reteaching	Enrichment

	The student will:	The student will:
Successful Writing at Work by Philip C.	Look for secondary source documents to	Additional articles, film clips and notes
Kolin	assist in understanding	would be available for enrichment
Technical Communication by John Lannon		
and Laura Gurak	After class/school discussion with teacher	
Promethean Board		
Chromebooks	Additional information on subject to assist	
Teacher made materials	in understanding	
Youtube videos		
Guest Speaker(s)relevant to topic and		
student needs.		
Local and regional field trips relevant to		
topics and student needs.		

Subject Area: English Course Title: Communicating in a STEM world

Grade: 12 Strand 6: Capstone Project

Academic/Content	Objectives	Instructional Strategies	Assessment Strategies
Standards/ Benchmarks			
The student will:	The student will:		
CC.1.4.11-12.A	Identify a topic of interest to	Students will identify a project	Class Discussions
Write informative/ explanatory	develop a portfolio product	in their area of interest.	Paper Rubrics
texts to examine and convey	which will be utilized to show		Presentation Rubric
complex ideas, concepts, and	proficiency in the previous	Depending on project pathway	Meeting Deadlines
information clearly and	strands.	identified final project may be	Portfolio Review
accurately.		represented by the following.	
	Project topics will be		
CC.1.4.11-12.B	established by a student	Vocational - Completed project	
Write with a sharp distinct focus	interest survey and a written	design including references to	
identifying topic, task, and	proposal.	blueprints, code requirements,	
audience.		construction specification, bill of	
CC.1.4.11-12.C	Project pathway may include	materials and quotes, customer	

Develop and analyze the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic; include graphics and multimedia when useful to aiding comprehension.

CC.1.4.11-12.D

Organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create whole; use appropriate and varied transitions and syntax to link the major sections of the text; provide a concluding statement or section that supports the information presented; include formatting when useful to aiding comprehension.

CC.1.4.11-12.J

Create organization that logically sequences claim(s), counterclaims, reasons, and evidence; Use words, phrases, and clauses as well as varied syntax to link the major sections of the text create cohesion, and clarify the relationships between claim(s)

Vocational
Engineering
Basic Research
Data Analysis
Other Student Focus to be identified

correspondence, communication with project managers, contractors. May include a set of instructions for assembly by end user. Final product will be suitable for presentation to a potential client for evaluation.

Engineering - Completed project proposal following basic engineering principles. Final project will include blueprints generated using autocad, cost analysis, possible 3d physical model if designing a product, instructions for use etc.

Basic Research - Student may select a topic for research. This option is available for any student who wishes to do independent research. Student will identify a topic, follow the scientific process develop an experiment, analyze data draw conclusions, undergo peer review and present findings via live presentation.

Data Analysis - Student will pick an area of study forming a driving question and hypothesis. Data sets available on sites such as data.gov may accessed and utilized to prove or disprove problem statements using

and reasons, between reasons and evidence, and between claim(s) and counterclaims; provide a concluding statement or section that follows from and supports the argument presented.	statistical analysis to find patterns. A research paper using MLA or APA style depending on area of focus.	
CC.1.4.11-12.K Write with an awareness of the stylistic aspects of composition.		
CC.1.4.11-12.P Create a smooth progression of experiences or events using a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome; provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.		
CC.1.4.11-12.U Use technology, including the Internet to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments and information.		
CC.1.4.11-12.W Gather relevant information		

from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism andover reliance on any one source and following a standard format for citation.

CC.1.4.11-12.X

Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes and audiences.

CC.1.5.11-12.A

Initiate and participate effectively in a range of collaborative discussions on grades level topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

CC.1.5.11-12.C

Integrate multiple sources of information presented in diverse formats and media (e.g.

visually, quantitative, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.		
CC.1.5.11-12.D Present information, findings, and supporting evidence, conveying a clear and distinct perspective; organization, development, substance, and style are appropriate to purpose, audience, and task.		
CC.1.5.11-12.F Make strategic use of digital media in presentations to add interest and enhance understanding of findings, reasoning, and evidence.		

Materials/Resources	Reteaching The student will:	Enrichment The student will:
Successful Writing at Work by Philip C.	Look for secondary source documents to	Students may identify and review existing
Kolin	assist in understanding	authors work in order to see examples.
Technical Communication by John Lannon		
and Laura Gurak	After class/school discussion with teacher	
Guest Speaker(s)relevant to topic and		
student needs.	Additional information on subject to assist	
Local and regional field trips relevant to	in understanding	
topics and student needs.	_	

Promethean Board Chromebooks	
Teacher made materials	
YouTube videos as needed	