The International Technology and Engineering Educators Association (ITEEA)

(formerly the International Technology Education Association/ITEA) is the largest professional educational association, principal voice, and information clearinghouse devoted to enhancing technology and engineering education through experiences in our schools (K–12). Its membership encompasses individuals and institutions throughout the world, with primary membership in North America.

**ITEEA Represents** technology and engineering educators who are classroom teachers, developers, administrators, and university personnel in the field, representing all levels of education, while ITEEA corporate members are comprised of leading technology companies. ITEEA has members from over 45 different countries.

**ITEEA Conducts** a vigorous public policy program, frequently providing information to government agencies, associations, and other special interest groups concerning technology and engineering education. The association strives to provide an understanding of the importance of technology and engineering education to the future growth and well-being of all nations.

**ITEEA’s Mission** is to advance technological capabilities for all people and to nurture and promote the professionalism of those engaged in these pursuits.

**ITEEA Seeks** to meet the professional needs and interests of members as well as to improve public understanding of technology education and its contributions. ITEEA’s curriculum interests reside in the “T” and “E” of STEM (science, technology, engineering, and mathematics) education.

**ITEEA Holds an Annual Conference** – the largest technology education showcase of exhibits and educational sessions in the world.

**ITEEA Sponsors** an active honors and awards program that recognizes outstanding teachers and programs (K–12) from states, provinces, and countries that are affiliated with the association. ITEEA also presents award certificates and supports other programs that recognize outstanding efforts in the profession of technology and engineering education.

**ITEEA Publishes** a variety of publications that lead the profession by providing teaching directions, instructional ideas, and networking opportunities, including:

- Journals: Technology and Engineering Teacher, The Elementary STEM Journal (formerly Children’s Technology and Engineering), and the Journal of Technology Education (pg. 18)
- The Technological Literacy Standards Series (pg. 11) and related Addenda (pg. 12)
- Engineering byDesign™ Curricular Offerings (pp. 4–10)
- STEM Connections – ITEEA’s monthly electronic newsletter

**Engineering byDesign™** includes courses and units that comprise a comprehensive K–12 model program that delivers STEM and technological literacy. EbD™ courses and units are available in this catalog or through membership in the EbD™ Consortium. For more information about EbD™ Consortium Membership options, please contact Jenifer Buelin at jkbuelin@iteea.org.

Future ITEEA Conferences:
- Orlando, FL
  - March 9-12, 2022
- Denver, CO
  - March 24-27, 2021
  - March 24-27, 2021

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For the most up-to-date information about ITEEA activities, standards, programs, conferences, professional development, membership, publications, or resources, visit the ITEEA interactive website at [www.iteea.org](http://www.iteea.org)

And for the latest information about the Engineering byDesign™ Program, be sure to check out the EbD™ site at [www.engineeringbydesign.org](http://www.engineeringbydesign.org)

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International Technology and Engineering Educators Association
1914 Association Drive, Suite 201
Reston, VA 20191-1539
703-860-2100
The International Technology and Engineering Educators Association’s STEM Center for Teaching and Learning™ has developed the only standards-based national model for Grades K–12 that delivers technological literacy through Integrative STEM-based instruction. Engineering byDesign™ is built on the Next Generation Science Standards, the Common Core State Standards, and the Standards for Technological Literacy (ITEA/ITEEA).

<table>
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<th>CORE PROGRAM</th>
<th>EbD-TEEMS NXTGEN™</th>
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<td>3–6</td>
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<td>11–12</td>
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<td>11–12</td>
<td><strong>Engineering Design (Capstone)</strong></td>
<td>36 weeks</td>
</tr>
</tbody>
</table>

STEM CTL/EbD™ Consortium of States

The STEM Center for Teaching and Learning™/STEM CTL™ is the research, curriculum, and professional development arm of the International Technology and Engineering Educators Association (ITEEA). ITEEA’s STEM CTL™ is the sole-source developer of the Engineering byDesign™ (EbD™) Standards-Based Model Program and the EbD™ Teacher Network. Through ITEEA’s STEM CTL/EbD™ Consortium, products and services are provided that are developed specifically for Consortium members. Membership in the Consortium provides exclusive rights to products and services in the year of development. The Engineering byDesign™ Program is based on the Understanding By Design (Wiggins and McTighe) process. EbD™ is the only model program based on three sets of content standards (Technology: ITEEA's STL, Mathematics: NCTM, and Science: AAAS/NGSS), as well as best practices for assessment, professional development, and curriculum development. The EbD™ Model Program has completed a crosswalk with the STEM and IT Clusters core knowledge and skill statements and provides articulated sequencing of courses. Contact ebd@iteea.org for additional information.
Foundations of Technology, *Standard Edition*  
A Standards-Based High School Model Course Guide  
This course guide, intended for Grades 9-10, prepares students to understand and apply technological concepts and processes that are the cornerstone for the high school technology program. Group and individual activities engage students in creating ideas, developing innovations, and engineering practical solutions. Technology content, resources, and laboratory/classroom activities apply student applications of science, mathematics, and other school subjects in authentic situations.  
P196E - $74; Members $62 (delivered as a downloadable file in the new, interactive Standard Edition [SE]).

Technological Design, *Standard Edition*  
A Standards-Based High School Model Course Guide  
In *Technological Design*, engineering scope, content, and professional practices are presented through practical applications. Students, in engineering teams, apply technology, science, and mathematics concepts and skills to solve engineering design problems and innovate designs. Students research, develop, test, and analyze engineering designs using criteria such as design effectiveness, public safety, human factors, and ethics. This course is an essential experience for students who are interested in technology, innovation, design, and engineering.  
P236E - $95; Members $75 (delivered as a downloadable zip folder)

Engineering Design, *Standard Edition*  
A Standards-Based High School Model Course Guide  
Intended for Grades 11-12, *Engineering Design* focuses on how engineers apply their creativity, resourcefulness, mathematical, scientific, and technical knowledge and skills in the creation or refinement of technological products/systems. A key approach will be the employment of a sophisticated, sequential, and iterative design and development process to solve authentic engineering tasks/problems.  
P222E - $95; Members $75 (delivered as a downloadable file in the new, interactive Standard Edition [SE]).

Technology and Society, *Standard Edition*  
A Standards-Based High School Model Course Guide  
*Technology and Society* teaches critical thinking skills as they relate to the creation and use of technology. Through the study of contemporary issues of science and technology, students are introduced to structured methods for assessing technology and science issues and developing defensible opinions and positions.  
P198E - $27; Members $22 (delivered as a downloadable zip folder)

Sample pages of many EbDTM courses are available at [www.iteea.org/STEMCenter/EbD/47499.aspx#tabs](http://www.iteea.org/STEMCenter/EbD/47499.aspx#tabs)
**Engineering byDesign™**

**EbD-PathwayExtensions™**

**Scientific & Technical Visualization I and II**

*Scientific & Technical Visualization I and II* are courses for Grades 10–12 focused on the principles, concepts, and use of complex graphic and visualization tools as applied to the study of science and technology. Students use complex 2-D graphics, 3-D animation, editing, and image analysis tools to better understand, illustrate, explain, and present technical, mathematical, and/or scientific concepts and principles. Emphasis is placed on the use of computer-enhanced images to generate both conceptual and data-driven models, data-driven charts, and animations. Science, math, and visual design concepts are reinforced throughout each course, which should take about 36 weeks to complete.

**Scientific & Technical Visualization I**

P242E - $26; Members $21 (downloadable pdf file)

*Note: There is no shipping charge for downloadable files.*

**Scientific & Technical Visualization II**

P243E - $26; Members $21 (downloadable pdf file)

*Note: There is no shipping charge for downloadable files.*

**Game Art Design, Standard Edition**

*Game Art Design (GAD)* introduces students to the basic skills necessary to enter the video game industry. In *GAD*, the students are introduced to the history of games and technology to help them understand where the industry has been and what the future may hold. Students also explore the basics of game theory and strategic thinking. Game designers create prototypes that provide a way to create aspects of the game or a working model of a game. This course will walk the student through this process, culminating in a finished board game prototype incorporating all of the aspects learned in game theory. In the culminating project, students practice learning a game engine and produce a functioning 2-D game.

P262E - $44; Members $38 (downloadable zip folder)

Sample pages of many EbD™ courses are available at [www.iteea.org/STEMCenter/EbD/47499.aspx#tabs]
Advanced Design Applications, Standard Edition
A Standards-Based High School Model Course Guide

Advanced Design Applications is intended for Grades 11-12 and focuses on three dimensions of technological literacy—knowledge, ways of thinking and acting, and capabilities—with the goal of students developing the characteristics of technologically literate citizens. It employs teaching/learning strategies that enable students to explore and deepen their understanding of "big ideas" regarding technology and makes use of a variety of assessment instruments to reveal the extent of understanding. The 36-week unit includes Manufacturing Technologies, Energy and Power Technologies, Construction Technologies, and Transportation Technologies.

P200E - $73; Members $63 (Delivered as a downloadable file in the new, interactive Standard Edition [SE].

Advanced Technological Applications, Standard Edition
A Standards-Based High School Model Course Guide

Advanced Technological Applications is a 36-week course that presents four nine-week learning units. The course is standards-based, with engineering-related curricula designed for upper-level high school students. The goal is to provide an engineering or technical base for high school students who plan to continue their education in technical or engineering programs at the community college or university level. There are eight separate learning units that include both instructor and student guides. Each nine-week learning unit begins with a robust Primary Challenge or design problem that is then supported in subsequent learning cycles. Unit titles are: Information and Communication Technologies, Medical Technologies, Agriculture and Related Biotechnologies, and Entertainment and Recreation Technologies.

P203E - $71; Members $61 (Delivered as a downloadable file in the new, interactive Standard Edition [SE].
These publications assist middle school technology and engineering teachers and curriculum developers in making informed decisions about appropriate content, methods and activities, assessment strategies, and resources for standards-based instruction for engineering and technological literacy in the context of STEM in Grades 6–8 and are essential for implementing standards-based technology education instruction for the middle school.

**Exploring Technology, Standard Edition**
A Standards-Based Middle School Model Course Guide

This sixth grade course focuses on core concepts of technology and various approaches to solving problems, including engineering design and experimentation. Group and individual activities engage students in brainstorming, visualizing, modeling, constructing, and testing their own designs as they discover how engineering and technology impact every individual and society as a whole.

P223E - $50; Members $45 (delivered as a downloadable file in the new interactive Standard Edition [SE]).

**Engineering for All, Standard Edition**
A Standards-Based Middle School Model Course Guide

**New!**

Engineering for All focuses on how to engineer solutions to problems that concern everyone on this planet: how to provide enough good food for people to eat, and how to supply all people with fresh water to drink. Key components of both stand-alone units, Water: The World in Crisis and Vertical Farms: Fresh Food for Cities, encourage students to develop predispositions to forge a sustainable future and discover how engineering is a route to engage in socially significant work.

P270E - $50; Members $45 (delivered as downloadable, interactive files.)

**Invention and Innovation, Standard Edition**
A Standards-Based Middle School Model Course Guide

**New!**

Invention and Innovation prepares students with opportunities to apply the design process in the invention or innovation of a new product, process, or system. In this course, students learn all about invention and innovation. They have opportunities to study the history of inventions and innovations, including their impacts on society. They learn about the core concepts of technology and about the various approaches to solving problems, including engineering design and experimentation. Students apply their creativity in the invention and innovation of new products, processes, or systems. Finally, students learn about how various inventions and innovations impact their lives. Students participate in engineering design activities to understand how criteria, constraints, and processes affect designs. Students are involved in activities and experiences where they learn about brainstorming, visualizing, modeling, constructing, testing, experimenting, and refining designs. Students also develop skills in researching for information, communicating design information, and reporting results.

P231E - $60; Members $54 (delivered as downloadable, interactive files.)

**Technological Systems, Standard Edition**
A Standards-Based Middle School Model Course Guide

**New!**

Technological Systems introduces students to systems and processes to develop an understanding of the impact of technology on humans, the environment, and the global community. By investigating systems through their function, design, and development, students will understand what systems are, why they are developed, and how “systems thinking” can be used to describe them. Students engage in activities and experiences where they evaluate the impacts of technology through the lenses of culture, society, economics, and the environment.

P235E - $50; Members $45 (delivered as downloadable, interactive files.)

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P270E - $50; Members $45 (delivered as downloadable, interactive files.)
All units contain teacher background information, handouts, transparency masters, and a student packet. Each unit is designed to integrate mathematics and science with technology and take 8 to 10 days.
Welcome to EbD-TEEMS™ for Grades K-6.

<table>
<thead>
<tr>
<th>GRADE</th>
<th>BUILDING BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>PreK</td>
<td>Our Living World</td>
</tr>
<tr>
<td></td>
<td>Introduces preschool students to the life cycles of plants, butterflies, and frogs. Group activities offer a multisensory, hands-on learning experience in which young students plant and observe seed growth, enjoy literature, and discover the circle of life.</td>
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<tr>
<td>Kindergarten</td>
<td>A Home for all Seasons</td>
</tr>
<tr>
<td></td>
<td>Students are challenged to craft homes for animals to meet their basic needs during seasonal changes or in different habitats.</td>
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<tr>
<td>First Grade</td>
<td>Agriculture Around Us</td>
</tr>
<tr>
<td></td>
<td>Students are challenged to design a garden as they explore the products, processes, and by-products of food and fiber systems.</td>
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<tr>
<td>Second Grade</td>
<td>Our Environment, Our Health</td>
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<td></td>
<td>Students are challenged to create absorbent mats as they learn about problems from the use of fossil fuels and methods to reduce, reuse, and recycle objects and materials.</td>
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<tr>
<td>Third Grade</td>
<td>Every Drop Matters</td>
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<tr>
<td></td>
<td>Students are challenged to develop systems to conserve and reuse water as they explore the scarcity of water resources on Earth.</td>
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<td></td>
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<tr>
<td>Fourth Grade</td>
<td>The Power of Solar</td>
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<td></td>
<td>Students are challenged to build and test models as they explore solar energy as a sustainable source of power for structures.</td>
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<td></td>
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<tr>
<td>Fifth Grade</td>
<td>Community Connections</td>
</tr>
<tr>
<td></td>
<td>Students are challenged to plan improvements to community infrastructure as they explore transportation and public services.</td>
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<tr>
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<tr>
<td>Sixth Grade</td>
<td>Our World and Me</td>
</tr>
<tr>
<td></td>
<td>Sixth-grade learners explore robotics through the engineering field of mechatronics. Mechatronics is an interdisciplinary engineering field that focuses on the integration of mechanical, electrical, and software systems.</td>
</tr>
</tbody>
</table>

In today’s rapidly changing, technological world, a foundation in Science, Technology, Engineering, and Mathematics (STEM) is as important as one in English language arts. Likewise, meaningful teaching and learning in STEM must begin as early as it does in English language arts. EbD-TEEMS™ is an acronym for Engineering byDesign-Technology, Engineering, Environment, Mathematics, and Science™. It is an integrative, elementary curriculum designed to serve as a model and instructional resource for building a solid foundation in STEM education for all students. The EbD-TEEMS™ Integrative Curriculum for Elementary STEM (EbD-TEEMS™) leverages technological design challenges in an environmental context as the focus for learning. Science and mathematics conceptual development is supported through strategic integration of key concepts and skills and is the result of aligning the sequence of EbD-TEEMS™ to the sequence of widely adopted science and mathematics curricular programs. Additionally, the Grand Challenges for Engineering identified by the National Academy of Engineering are used as a context for problem solving, and inquiry and design-based instructional strategies further enhance the design of EbD-TEEMS™.

New, Standard Edition

<table>
<thead>
<tr>
<th>Code</th>
<th>Grade</th>
<th>Price</th>
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<tbody>
<tr>
<td>P269E</td>
<td>PreK</td>
<td>$31; Members $26</td>
</tr>
<tr>
<td>P258E</td>
<td>Kindergarten</td>
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<td>P259E</td>
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<td>P257E</td>
<td>Grade 5</td>
<td>$31; Members $26</td>
</tr>
<tr>
<td>P266E</td>
<td>Grade 6</td>
<td>$31; Members $26</td>
</tr>
</tbody>
</table>

(Delivered as downloadable zip files.)
Advancing Excellence in Technological Literacy: Student Assessment, Professional Development, and Program Standards

Advancing Excellence in Technological Literacy (AETL) is designed as a companion document to Standards for Technological Literacy. Like STL, AETL is based on the vision that all students can and should become technologically literate and was created to provide the means for implementing STL in K–12 laboratory-classrooms. ISBN: 978-1-887101-03-5

P184E - $24; Members $20 (downloadable pdf file)

Executive Summary
Advancing Excellence in Technological Literacy: Student Assessment, Professional Development, and Program Standards

A wonderful promotional tool, the AETL Executive Summary outlines the content of AETL.

P185E - $2 (downloadable pdf file)

Technological Literacy for All: A Rationale and Structure for the Study of Technology

The 2006 edition of Technological Literacy for All: A Rationale and Structure for the Study of Technology is a major rewrite of Technology for All Americans: A Rationale and Structure for the Study of Technology (ITEA, 1996) that enhances and updates the original edition considerably. It provides much more explanation of what technology and technological literacy are as well as why everyone needs to be technologically literate. This edition provides a logical transition from the 10 universals (processes, knowledge, and contexts) generated in the first edition into the 20 standards found in ITEA’s (ITEEA’s) Standards for Technological Literacy (2000/2002/2007). Also included in this new edition are sections on the teaching of technology in Grades K–12 and beyond.

P214E - $15; Members $12 (downloadable pdf file)

Note: There is no shipping charge for downloadable files.
Addenda to Technological Literacy Standards Series

**Realizing Excellence: Structuring Technology Programs**

*Realizing Excellence* is considered the “umbrella” addendum to all the other STL/AETL addenda and is intended to help educators implement the program standards in Chapter 5 of *AETL* (previous page). It offers educators and other concerned individuals practical suggestions and hands-on tools for planning, developing, implementing, and evaluating standards-based technology programs.

P189E - $23; Members $19 (downloadable pdf file)

**Developing Professionals: Preparing Technology Teachers**

*Developing Professionals* offers practical guidance for those who plan, implement, and/or evaluate the standards-based education of teachers of technology. It is intended to help users implement the professional development standards in Chapter 4 of *AETL* by addressing professional development at both the preservice and in-service levels, including the need for teacher candidates and teachers to become responsible for their own professional growth.

ISBN: 978-1-887101-06-6  
P190E - $23; Members $19 (downloadable pdf file)

**Planning Learning: Developing Technology Curricula**

*Planning Learning* provides curriculum developers with a multistep approach to developing and revising standards-based technology curricula, complete with practical suggestions and worksheets. The approach is a modification of the widely accepted backwards design model outlined by Grant Wiggins and Jay McTighe. *Planning Learning* is also closely aligned with the approach for student assessment that is outlined in the addendum titled *Measuring Progress*. ISBN: 978-1-887101-07-3  
(Print version sold out.)  
P191E - $23; Members $19 (downloadable pdf file)

**Measuring Progress: Assessing Students for Technological Literacy**

*Measuring Progress* is a resource for teachers to use as they plan and implement standards-based student assessment. It is intended to help users implement the student assessment standards in Chapter 3 of *AETL*. The step-by-step approach presented is a closely aligned modification of the widely accepted backwards design model outlined by Grant Wiggins and Jay McTighe. The modification enables the approach to be applied to many levels of the program—course, unit, or lesson. *Measuring Progress* also provides a handy resource for information about a variety of assessment tools and methods, including descriptions, guidelines for use, and lists of advantages and disadvantages.

P187E - $23; Members $19 (downloadable pdf file)

*Note: There is no shipping charge for downloadable files.*
New from ITEEA!

The Best of Books to Briefs: A Collaborative Guide!

Safer hands-on STEM is essential for every instructor and student. Read the latest information about how to design and maintain safer makerspaces, Fab Labs, and STEM labs in both formal and informal educational and community settings. This book features information about liability/legal standards, better professional practices, safety controls, addressing biological/chemical/physical hazards, first aid procedures, the facilities planning process, recommended designs and existing examples, and frequently asked safety questions. It is easy to read, providing practical recommendations and examples for instructors, administrators, and media specialists. If your community or school system is looking to design or modify a facility to engage students in safer hands-on STEM activities, then this book is a must read! (spiral bound)
FREE preview available at https://sites.google.com/a/vt.edu/safetybook2017/.
P268 - $49; Members $42 (print version)

FROM ITEEA’S CHILDREN’S TECHNOLOGY AND ENGINEERING JOURNAL

The Best of Books to Briefs

Books to Briefs has long been a popular feature in ITEEA’s Children’s Technology and Engineering journal. Educator authors begin with children’s books and make clear connections to technology and engineering elementary curriculum through ready-to-use lesson plans, goals, worksheets, and more.

The Best of Books to Briefs is organized into three relevant content areas:
• The Engineering Design Process
• The Environment
• Making Connections

Purchase and download The Best of Books to Briefs in the ITEEA eStore at www.iteea.org/STEMProducts.aspx
P267E – $22; Members $19 (downloadable pdf file)
Facilities Planning Guide

While not all technology education laboratories will look exactly the same, there are certain laboratory requirements that should be included in any technology education laboratory design. These designated areas are defined in this standards-based ITEEA Facilities Planning Guide and provide logical and specific guidelines for designing and implementing a standards-based laboratory in your local school, no matter what the size.

While the primary focus of this guide is on senior high school laboratory requirements, the elements and recommendations are appropriate and relevant to any middle school-level laboratory and should be incorporated in any laboratory design.

P244E – $23; Members $18 (downloadable file)

Note: There is no shipping charge for downloadable files.

Designing Safer Learning Environments for Integrative STEM Education

Fourth Edition
V. William DeLuca and W. James Haynie, III
Revised in 2014 by Tyler S. Love and Kenneth Russell Roy

Completely revised in 2014, this manual aids teachers in developing and carrying out a safety program in the technology and engineering education classroom. The guide uses the systems approach: Safety in the classroom is dependent on the interaction of varied elements, and many of these elements are discussed in the text, such as the environment, human factors, tools and equipment, processes, materials, and outside influences. The manual includes sample releases and other forms that teachers can duplicate for classroom use. New in this edition are 18 printable safety posters with corresponding safety tests and PowerPoint presentations and videos that teachers can use to reinforce safer practices as well as a link to ITEEA’s Safety Resource site where teachers can access these resources.

P221E - $36; Members $29 (downloadable zip folder)

Note: There is no shipping charge for downloadable files.

Engineers and Engineering: A Review

Students are fascinated by the topic of engineering, so why not treat them with Engineers and Engineering: A Review, a new ebook from ITEEA written by retired engineer and inventor, Harry T. Roman. Harry is a long-time ITEEA contributor and author and talks plain and simple about engineering and what engineers do.

You will learn about the legacy, excitement, and history of this noble profession, one of the oldest in the world—the people who built the pyramids and the other great wonders of the ancient world. In our STEM educational paradigm, the inclusion of engineering pays tribute to the time-honored tradition of the engineering problem-solving process, the foundation of all new product development.

Examine the daily activities of engineers, the different kinds of engineering, how engineers grow and mature on the job, and the salaries for professionals in the field today. See how engineers manage and lead project teams to complete large scale projects. Learn the critical skills engineers need to be successful; and how engineering and invention are so similar.

P261E – $17; Members $13 (downloadable pdf file)

Note: There is no shipping charge for downloadable files.
The Overlooked STEM Imperatives: Technology and Engineering, K–12 Education

As the STEM education movement gains momentum, our leaders cannot continue with the mentality that our society only moves forward on mathematics and science alone.

Take this opportunity to gain a better understanding of the need for STEM education and its critical role in creating a technologically literate society. The rationale for the “T and E” has been specifically addressed in order to gain support for these subjects as part of the overall STEM effort.

You are invited to explore the power and promise of a STEM (science, technology, engineering, and mathematics) education through this publication, but more importantly, to seek to understand the importance of ensuring that the “T and E” are equal partners within STEM to adequately prepare the next generation workforce as well as valued contributors to our communities and society.

P240E – $15; Members $13 (downloadable pdf file)

The Connection to the 21st Century Workforce: Technology and Engineering Education

Building a competitive workforce for the 21st Century requires the careful alignment of K-12 and university curricula with the skill needs of business and industry. In addition to making students better problem solvers, critical thinkers, and users of technology, academic preparation must instill in them the desire to become lifelong learners, willing and able to adjust and adapt to changes in workforce skill requirements resulting from fast-changing global markets. This publication provides a snapshot of the current state of the economy and workforce, followed by the identification and requirements of knowledge and abilities needed for 21st Century occupations, an explanation of how technology and engineering education programs promote learning about technology and can be taught in exciting ways that motivate learners to pursue STEM occupations, chapters that explain the contributions of technology and engineering education, K-12, a chapter explaining how technology and engineering teacher education can prepare teachers to deliver the education that is needed by students of the 21st Century, and an overview of the benefits business and industry can expect from the recommendations made within this publication.

P246E – $17; Members $15 (downloadable pdf file)

Preparing the Class of 2020

If you have been searching for STEM activities for the elementary classroom, this publication is for you. The document is a compendium of over 30 hands-on projects that have appeared as either Activities or Quick Activities in Volumes 10-14 of ITEEA’s Technology and Children (now Children’s Technology and Engineering) journal. The activities will energize your students by encouraging them to work cooperatively and think creatively, all the time enhancing their 21st Century skills.

P245E – $24; Members $20 (downloadable pdf file)

Alternate Energy Technology Design Challenges

Written by Harry T. Roman, author of the Classroom Challenge feature of Technology and Engineering Teacher, this publication contains 12 interesting and highly challenging alternate energy design problems that can be assigned to individual students or teams of students. Each problem is open-ended and multidimensional to give the student(s) a chance to experience the kinds of real-world problems that alternate energy engineers will face on the job.

P241E – $15; Members $13 (downloadable pdf file)
**Classroom Challenges**

*From Harry T. Roman*

Here are classroom challenges designed to turbo-charge those creative juices and integrated subject discussions. Get students working in teams to address multidisciplinary and multidimensional aspects of real-world problem solving. Great stuff for the STEM classroom! Each publication contains 19-20 topics. Previously published in *Technology and Engineering Teacher*.

**Environment, Energy, Invention, and Safety**

P253E – $15; $13 members *(downloadable pdf file)*

**Problem Solving and Design**

P254E – $15; $13 members *(downloadable pdf file)*

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**Resources in Technology and Engineering**

These resources provide insights, perspectives, and innovation in technology for teachers and students. The authors view STEM as learning through Imagineering! Each publication contains 5-7 in-depth, standards-based studies of relevant topics as well as suggestions for practical application. Previously published in *Technology and Engineering Teacher*.

**Biotechnology/Medicine**

P250E – $17; $15 Members *(downloadable pdf file)*

**Environment**

P249E – $17; $15 Members *(downloadable pdf file)*

**Construction, Manufacturing, and Communication**

P247E – $17; $15 Members *(downloadable pdf file)*

**Technological Innovation**

P251E – $17; $15 Members *(downloadable pdf file)*

**Energy**

P248E – $17; $15 Members *(downloadable pdf file)*

**Transportation**

P252E – $17; $15 Members *(downloadable pdf file)*
Equity Guide

Determining Progress Toward Achieving Equity, Second Edition

This document includes the following materials:

- Equity in Science, Technology, Engineering, and Mathematics (STEM)
- Factors that Influence Females' Decisions to Participate in STEM Areas
- Assessing Equity in Your Program and Creating an Equity Action
- Retention and Recruiting
- Resources

P232E – $23; Members $19 (downloadable pdf file)

Riding the Elementary T.I.D.E.

Riding the Elementary T.I.D.E. is a project developed for students in grades two and three. Each unit focuses on a different facet of the acronym TIDE (Technology, Innovation, Design, and Engineering). The units are each about three hours long and contain background material for the teacher as well as an age-appropriate design challenge for the students. Funding for the units was provided by the National Education Association.

Units:

The GREEN Mission: Students are introduced to simplified steps that make up the design process and are then asked to design a solution to a packaging problem for G.R.E.E.N. Incorporated. This environmentally friendly company is hosting an Earth Day contest to seek ideas for sustainable and cost-effective ways to package products that could be purchased on the Internet.

The Garden Gadget Gala: Students will learn the difference between invention and innovation and will then be asked to interview an older person to get an idea as to what garden tools they have difficulty using. The interview responses will be used to innovate the garden tools that students will bring to class. After the students have changed the garden tool using play dough and other materials, they will present their ideas to a panel of invited guests.

Technology in a Bag: In this unit, students will begin to understand that common materials can be used for more than just their intended purpose. Students will also begin to recognize that particular materials are used to make products in order to fit their intended purpose.

Investigative Minds: Students begin to understand how products work by taking them apart using simple hand tools, and exploring their inner workings. By doing this they will recognize a variety of different materials, mechanical parts, and uniquely shaped pieces. Through these activities they will also be introduced to two engineering fields and better understand what work individuals do in these fields.

P233E - $17; Members $14 (downloadable pdf file)
Professional Journals

Technology and Engineering Teacher

Subscribe to Technology and Engineering Teacher—the leading professional journal of technology and engineering education. Each issue contains ideas for the classroom and technology learning activities that teachers find very useful. These activities are successfully being used in classrooms around the country and are age-appropriate for students in Grades 6–12. Also included:
- Articles on current trends and changes in technology and engineering education
- Program articles
- Classroom Challenges
- Safety Spotlight
- Plus, much more

Published eight times during the school year (beginning in September—combined issues in December/January and May/June), TET is a valuable resource for your classroom.

MEMBERS – All memberships include one TET subscription. Elementary and MS/HS group memberships include multiple copies. (International, Student, and Advocate member types receive their copies electronically.)

TET03 - Electronic TET subscription - $70/year
TET03-1 - Single TET issue (electronic) - $8.50
Electronic journals will be delivered via email as a link to both pdf and html versions.

TET01 - Print TET subscription, USA - $110/year
TET02 - Print TET subscription, outside USA - $125/year
*Subscription prices include Shipping & Handling via surface mail.

PTET01 - Single TET issue (print) - $11.00; Members - $10.00
*Shipping & Handling charges will be added to single copy prices. To order individual print issues please contact the ITEEA office at (703) 860-2100 or email iteea@iteea.org.

The Elementary STEM Journal

(formerly Children’s Technology and Engineering)

Written expressly for elementary teachers and published four times during the school year (September, December, March and May), The Elementary STEM Journal is packed with practical, innovative, and creative articles and hands-on activities. Features also include:
- Books to Briefs
- Career Connections
- Literacy Strategies
- Quick Activities
- Space Place
- and more!

MEMBERS – ESJ electronic subscriptions are included in Elementary and Institutional group memberships.

ESJ03 - Electronic ESJ Subscription - $30/year
ESJ03-1 - Single ESJ issue (electronic) - $8.00
Electronic journals will be delivered via email as a link to both pdf and html versions.

ESJ01 - Print ESJ Subscription, USA - $50/year; Members - $35/year
PESJ01 - Single ESJ issue (print) - $11.00
*Shipping & Handling charges will be added to single copy prices. To order individual print issues please contact ITEEA office at (703) 860-2100 or email iteea@iteea.org.

Journal of Technology Education

JTE is a refereed scholarly journal that provides a forum for discussion of technology education. Conceptual as well as research-based articles are published. This biannual journal is cosponsored by ITEEA and the Council on Technology and Engineering Teacher Education (CTETE).

JTE01 - Print JTE subscription, USA - $20/year
JTE02 - Print JTE subscription, outside USA - $30/year

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Elementary School

These resources provide strategic directions for developing contemporary, beginning-level units and thematic instruction compatible with Standards for Technological Literacy: Content for the Study of Technology (STL). Content includes curriculum goals and objectives, instructional strategies and sequences, content connections, and sample student assessment strategies. The information contained in these guides will assist teachers in beginning to implement STL and can also be used by state, provincial, and local curriculum developers in creating standards-based curriculum.

Technology Starters, A Standards-Based Guide
P182E - $15 (downloadable pdf file)

Models for Introducing Technology, A Standards-Based Guide
P186E - $15 (downloadable pdf file)

Note: There is no shipping charge for downloadable files.

Teaching Technology: High School
Strategies for Standards-Based Instruction
High school teachers will be able to expand their instructional toolbox with contemporary methods and teacher-tested activities that are aligned with Standards for Technological Literacy. A resource section recommends classroom materials that support high school content and activities.
P173E - $10 (downloadable pdf file)

Teaching Technology: Middle School
Strategies for Standards-Based Instruction
Presents contemporary methods, activities, and resources for standards-based instruction in Grades 6–8. Activities, selected from national curriculum projects, have been teacher-tested. Each classroom/laboratory activity corresponds with relevant methods and STL standards.
P167E - $10 (downloadable pdf file)
ITEEA Logo Products

Technology and Engineering Bring STEM to Life!

ITEEA Logo Whisper
This black polo with ITEEA’s “Technology and Engineering Bring STEM to Life” logo is made from easy-care wonder fabric that still fits your budget. Easy-care 60% cotton/40% polyester, 5.6-oz., relaxed fit, double-needle top-stitching, half-moon patch, split tail.

Mens Sizes:
- T189M $25
- T189L $25
- T189XL $25

Ladies Sizes:
- T189WS $25

ITEEA Logo Tee Shirt
This comfortable, loose-fitting tee is 100% cotton and comes with the ITEEA “Technology and Engineering Bring STEM to Life!” message.

Sizes:
- T190S $12
- T190M $12
- T190L $12
- T190XL $12
- T190XXL $12

Sing the praises of your colleagues with this new Superhero tee shirt from ITEEA. This 100% cotton tee is comfortable and fun to wear.

Sizes:
- T191S $15
- T191M $15
- T191L $15
- T191XL $15
ITEEA Logo Products

ITEEA Translucent Click Pen
Black ballpoint ink cartridge pen with click-action mechanism. In “smoke” color and imprinted with the ITEEA logo.
T186 - $1 each

Lapel Pins
Wear these beautiful pins on your lapel or collar to show your affiliation.

ITEEA Member Pin
ITEEA Membership Pin
T181 - Members Only - $5

ITEEA Affiliated Council Pin
Council for Supervision and Leadership (CSL)
T182 - Members Only - $5

Student Recognition Award Certificate
Use these handsome 8 ½” x 11” certificates to recognize the work of your outstanding students. Each certificate is signed by both ITEEA’s President and Executive Director.
T025 - $1 each
T026 - 5 copies for $4

“This We Believe” Certificate
This certificate describes the goals and aims of technology and engineering education and its professionals. Suitable for framing (8 ½” x 11”).
T105 - $1 each
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Special Delivery Requests: For special shipping requests, call 703-860-2100. Requests for same-day shipping must reach ITEEA by noon (EST/EDT).

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