

NJDOE Office of Career and Technical Education  
Program Reapproval Webinar:

# SCIENCE, TECHNOLOGY, ENGINEERING, & MATHEMATICS

March 4, 2014

**Audio Check using the Audio Wizard at the left of  
your screen in the Participants Pane.**



**New Jersey Department of Education  
Office of Career and Technical Education**

**SCIENCE, TECHNOLOGY, ENGINEERING, & MATHEMATICS (STEM)**

**Kate Diffenderfer - Lead  
Anne Freeman  
Charlotte Gray**

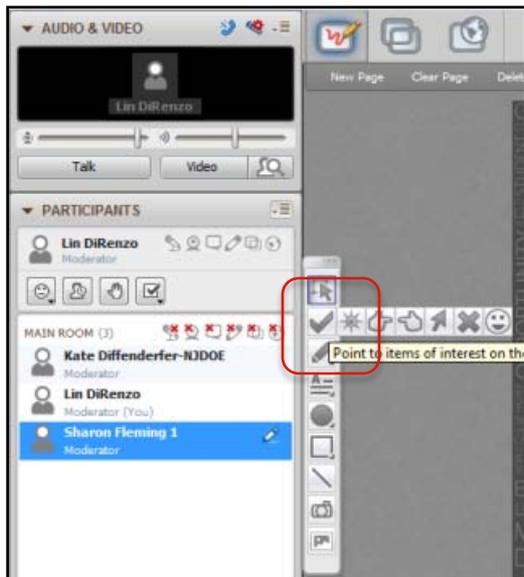
# Housekeeping

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- Audience audio is disabled, please type any questions in the chat area. The questions should be addressed in the chat area by members of our STEM Team, either during a break in our webinar or during the final wrap-up.
- This webinar is being **recorded!** You will be notified when it becomes available on our website.

# Where are you?

Using the Shape tool on the Tools Palette, mark your school's location on the New Jersey map.



# Our Goals for Today:

- Overview of the Reapproval Process
- Information on STEM Career Cluster<sup>®</sup>
- Program Reapproval Application Information

# **STEM Career Cluster<sup>®</sup>**

**Webinar: Today, March 4, 2014!**

**(And Recorded)**

**Applications due: May 16, 2014**



# **Review: Reapproval Process & Application**

# Overview Webinar of the Reapproval Process



**On November 21, 2013, a webinar was held to provide guidance on the new/revised CTE Reapproval Application for CTE programs.**

**That informational session has been recorded, and is available at:**

**<http://www.nj.gov/education/cte/study/approval/>**

# Application Downloads/Uploads

<http://www.nj.gov/education/cte/study/approval/>

**DOE Folders**

## CTE Program

This website is for the Secondary districts that have state approved secondary Career and Technical programs which need to be reapproved through the New Jersey Department of Education Office of Career and Technical Education. This web site allows LEA's to submit their application electronically to NJDOE. Please visit <http://www.nj.gov/education/cte/study/approval/> for more information.

You can download the revised CTE Reapproval Application by clicking on the link below:

Applications	
<a href="#">NEW CTE Program Application</a> Application for a new program that has not currently been assigned a CIP code at the district.	<a href="#">CTE Reapproval Application</a> Application to have a CIP reapproved that is currently operating at a district.

Instructions: [Instructions for CTE New Program or Re-approval Application](#)

TO UPLOAD your application, you will need to login with the username and

### Sign In

District Id

Username

Password

Districts without an account for this application must contact their district's Homeroom Administrator to establish an account.

**Application has been modified.**

# Application Sections

Section	2013-2014 Application	2013-2014 Reapproval Includes
Section 1	Applicant Information	
Section 2	Program Information (CIP Code, Labor Market Info, Teacher Certification)	
Section 3	Enrollment Data	CTE Performance Data
Section 4	Advisory Committee Meeting Dates (includes upload of meeting minutes)	
Section 5	CTE Program or CTE Program of Study	
Section 6	Course Details (includes course syllabus upload)	
Section 7	End-of-Program Technical Skills Assessment & Industry Credentials	
Section 8	Structured Learning Experience (SLE)	
Section 9	Career and Technical Student Organization (CTSO)	
Section 10	Business and Labor Partners	
Section 11	Statement of Assurances	

# Performance Reports

DOE Folders

Welcome test [logout](#)

## CTE Program

### Downloading the CTE Performance Data Report (Reapproval Applications only)

For Reapproval applications, download and review the report. You will be asked to respond to questions in Section 3 of the Reapproval application using this data. For technical assistance or questions regarding the information in the Performance Data Report, please contact your NJDOE Program Officer for your county: <http://www.nj.gov/education/cte/contact.htm>. To download the report, please follow the instructions below:

1. Go to the "Download Files" area
2. Click the link to the file you would like to download
3. Click the "Open" button in the dialog box to open the file
4. After viewing the file, you can save a copy of it on your computer by clicking on "File" and "Save As"

### Uploading (all applications)

Please ensure that you have filled out your application in its entirety. If you have any questions about any items, please contact the Perkins Program Officer. Their contact information can be found on the bottom of the CTE Contact Information Page. **Please make sure your file has the correct file name (refer to the instructions: [Instructions for CTE New Program or Re-approval Application](#)).**

1. Click the browse button
2. Find and select your file from your computer
3. Click the "Open" button in the dialog box
4. Click the "Upload" button
5. Once uploaded, a green box will appear that says your file has been uploaded successfully
6. Upload all other supporting documents by following the same instructions as above

**NOTE: Due to CIP code realignments, some performance reports are not pulled. If missing, please contact Program Officer to notify and it will be remedied.**



### Download Files

/CTEPR/Production/OUTBOX/01/0110/

Name	Modified	Description
 <a href="#">New Text Document.txt</a>	27-Nov-2013 10:46	

### Upload Files

/CTEPR/Test/INBOX/ /01/0110/

Use the browse or choose file button to select the file you'd like to upload.

File

# Additional Documentation

Section	Name	File #	Required/ Applicable	Detail
4	Advisory Committee	File 1	Required	Upload a copy of the meeting minutes for meeting 1
		File 2	Required	Upload a copy of the meeting minutes for meeting 2
5	CTE Program or CTE Program of Study	File 3	If applicable	PROGRAM OF STUDY ONLY: Articulation Agreement signed by college president and secondary chief school administrator
6	Course Details	File 4	Required	Course syllabus for course 1
		File 5	Required	Course syllabus for course 2
		File 6	Required	Course syllabus for course 3
		File 7	If applicable	Course syllabus for course 4
9	CTSO	File 8	If applicable	Copy of CTSO affiliation if available
11	Statement of Assurances	File 9	Required	Copy of Statement of Assurances page signed by chief school administrator

*This chart of uploads is available in the application.*

# Questions on the CTE Reapproval Application Process?



Learning that works  
for New Jersey

# Information on the STEM Career Cluster®

# What are Career Clusters®?

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**Used to organize academic and technical knowledge and skills into a coherent sequence of courses.**

And

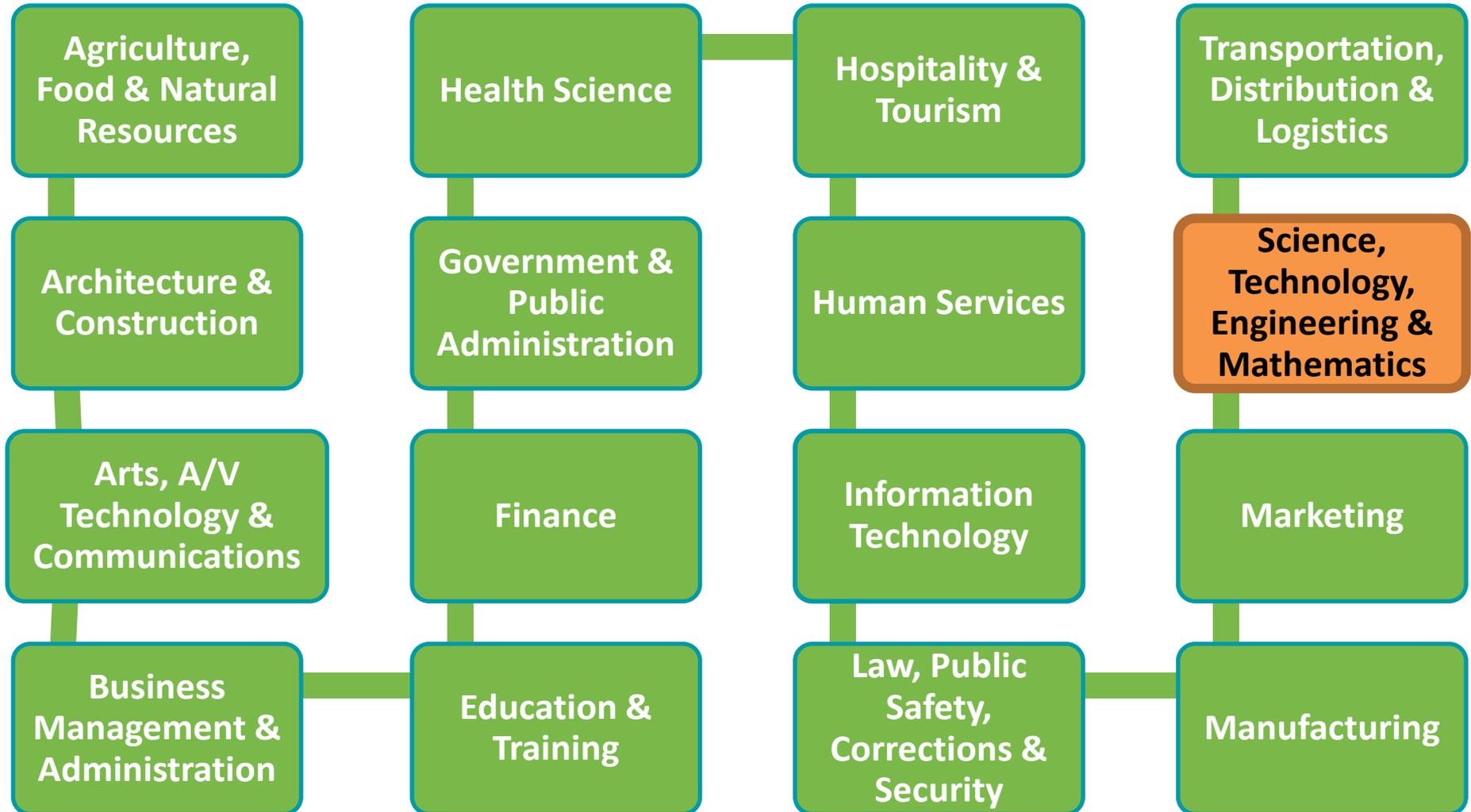
**Identify pathways from secondary to postsecondary education.**

GLOBAL  
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LEADING CHANGE  
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READINESS  
STUDENT  
COLLEGE &  
CAREER  
ECONOMIC VITALITY  
LEADERSHIP  
HIGH-DEMAND  
OPPORTUNITY  
SKILLS  
SUSTAINABLE  
WORKFORCE  
LEADING CHANGE  
COLLEGE & CAREER  
WORLD CLASS  
HIGHER  
RATES  
STUDENT  
SUCCESS  
CAREER  
WORLD CLASS  
ECONOMIC  
ENTREPRENEURSHIP  
LEADING CHANGE  
MAKING  
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READINESS  
HIGH-DEMAND  
OPPORTUNITY  
STUDENT  
SUCCESS  
ENTREPRENEURSHIP  
ECONOMIC  
TRANSPARENCY  
EXPERIENCE



PATHWAYS TO COLLEGE & CAREER READINESS

# Career Clusters



# What's a CIP Code?

- **Classification of Instructional Program**
- [National Center for Education Statistics](#) designed the [Classification of Instructional Program \(CIP\) code](#) “to provide a taxonomic scheme that will support the accurate tracking, assessment, and reporting of fields of study and program completions activity.”
- Provides guidance for the curriculum content of a program/program of study via the CIP description.

# Science, Technology, Engineering, & Mathematics (STEM)

## Career Cluster® & Pathways



- Building linkages in STEM occupations for entry level, technical, and professional careers related to the *planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services, and research and development services.*
  - **Engineering & Technology**
  - **Science & Mathematics**

# Eligibility Chart

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- NJ created resource documents:  
<http://www.nj.gov/education/cte/study/approval/>
  - CIPs that are approvable, transferred to other career clusters, and those no longer approvable
    - Organized by Pathway
    - Marked with eligibility status
  - Assessments & Teacher Certifications
  - Potential Apprenticeships
  - Occupation Information for each job a person trained might ultimately hold
    - SOC – Standard Occupational Code

# Sample of the Eligibility Chart

Eligibility	Pathway	Program Name	CIP 2010 Code	Program Description	Assessments	Teacher Credentials	Apprenticeships (Not all are available in NJ)	Associated SOC* Codes	Associated SOC* Job Titles	Median Wages - NJ	Median Wages - National	Employment Trends - NJ	Employment Trends - National	Green? Y/N
	Moved to CIP 2012 Agriculture, Food, & Natural Resources Cluster	Environmental Studies	3.0104	A program that focuses on the application of biological, chemical, and physical principles to the study of the physical environment and the solution of environmental problems, including subjects such as abating or controlling environmental pollution and degradation; the interaction between human society and the natural environment; and natural resources management. Includes instruction in biology, chemistry, physics, geosciences, climatology, statistics, and mathematical modeling. See also: 14.1401) Environmental/Environmental Health Engineering., 26.1305) Environmental Biology.,26.1307) Conservation Biology.		Agriculture #2504, Environmental Service Systems #2505								
Y	Engineering & Technology	Engineering, General.	14.0101	A program that generally prepares individuals to apply mathematical and scientific principles to solve a wide variety of practical problems in industry, social organization, public works, and commerce. Includes instruction in undifferentiated and individualized programs in engineering.	Pre-engineering/ Engineering Technology (#2475) www.nocli.org	Engineering Technology #2545	NO	11-9041	Architectural and Engineering Managers	\$134,100	\$124,900	8%	9%	Y
							NO	17-2199	Engineers, All Other	\$98,500	\$92,000	2%	7%	N
N	Engineering & Technology	Pre-engineering	14.0102	A program that prepares individuals for admission or transfer to a baccalaureate-level program in any of the fields of engineering.	Pre-engineering/ Engineering Technology (#2475) www.nocli.org	Engineering Technology #2545	NO	None listed	None listed					
Confer	Engineering & Technology	Bioengineering and Biomedical Engineering.	14.0501	A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of biomedical and health systems and products such as integrated biomedical systems, instrumentation, medical information systems, artificial organs and prostheses, and health management and care delivery systems.		None available	NO	17-2031	Biomedical Engineers	\$81,800	\$87,000	55%	62%	N
							NO	11-9041	Architectural and Engineering Managers	\$134,100	\$124,900	8%	9%	Y

# Current NJ STEM CIPs

Pathway	CIP	Program Name
Engineering & Technology	140101	Engineering, General
	140102	Pre-Engineering
	140701	Chemical Engineering
	144201	Mechatronics, Robotics, and Automation Engineering
	150000	Engineering Technology, General
	159999	Engineering Technologies and Engineering-Related Fields, Other
Science & Mathematics	260102	Biomedical Sciences
	261302	Marine Biology and Biological Oceanography
	269999	Biological & Biomedical Sciences, Other
	450702	Geographic Information Science and Cartography

# Engineering & Technology Pathway



## Additional Eligible CIPs

CIP	Program Name
14.0801	Civil Engineering, General
14.0804	Transportation and Highway Engineering
14.1001	Electrical and Electronics Engineering
14.1101	Engineering Mechanics
14.1401	Environmental/ Environmental Health Engineering
14.1901	Mechanical Engineering
14.3301	Construction Engineering
14.4201	Mechatronics, Robotics, and Automation Engineering
15.0000	Engineering Technology, General
15.0306	Integrated Circuit Design
15.0406	Automation Engineer Technology/ Technician
15.0704	Hazardous Materials Information Systems Technology/ Technician
15.1102	Surveying Technology/ Surveying

# Science & Mathematics Pathway



## Additional Eligible CIP

CIP	Program Name
30.3301	Sustainability Studies

# STEM CIP Code Realignments



CIP	Program Name	Moving to Career Cluster®:	Possible Alternative Eligible STEM CIP(s)	
03.0104	Environmental Studies	AFNR	14.1401	Environmental/ Environmental Health Engineering
26.1201	Biotechnology	Health Science	26.0102	Biomedical Sciences, General
15.0303	Electrical, Electronic and Communications Engineering Technology/ Technician	Manufacturing	15.0306	Integrated Circuit Design
15.0403	Electromechanical Technology/ Electromechanical Engineering Technology/Technician	Manufacturing	15.0000	Engineering Technology, General
15.0405	Robotics Technology/ Technician	Manufacturing	15.0406	Automation Engineer Technology/ Technician
15.0805	Mechanical Engineering/Mechanical Technology/ Technician	Manufacturing	15.0000	Engineering Technology, General
*41.9999	Science Technologies/ Technicians, Other	Manufacturing	Consult with Program Officer to discuss intent /focus of program	

# CIP Realignment – Next Steps

- The CIPs are moving to different Career Cluster<sup>®</sup> due to a national realignment.
- Districts can opt to move CIPs (**changing Career Cluster<sup>®</sup>, use NEW CTE application**) OR reapply as “Change of CIP” using the suggested eligible STEM CIPs identified above (**use REAPPROVAL CTE application**).
- ***Example of guidance:***
  - The CIP was a STEM program that was realigned to the Manufacturing cluster
  - The district wishes to be retain the CIP that is now in the Manufacturing cluster
  - Since the program was approved 5 years ago as an STEM program, the re-approval date is **THIS cycle, 2013- 2014**, with the STEM CIPs.
  - That approval will be for only X number of years. (depending on the cluster the program is going into)
  - The district will need to submit another re-approval again with the Manufacturing Cluster in 2015-2016 to realign to the new cluster. (or appropriate new cluster)

# Questions on the Science, Technology, Engineering, & Mathematics Career Cluster<sup>®</sup> and eligible CIPs?



# **STEM CTE Program Application**

## **Specific Guidance**

# STEM Program Considerations

# STEM Across the Career Clusters<sup>®</sup>



CTE Is Your STEM Strategy

NASDCTEc

[www.careertech.org](http://www.careertech.org)

December 2013

CAREER CLUSTER	SAMPLE STEM CAREERS	CAREER CLUSTER	SAMPLE STEM CAREERS
Agriculture, Food & Natural Resources	<ul style="list-style-type: none"> <li>• Agriculture Technicians</li> <li>• Agriculture Engineers</li> <li>• Forest &amp; Conservation Workers</li> <li>• Food Science Technicians</li> <li>• Veterinarians</li> <li>• Marine Biologists</li> <li>• Water Resource Specialists</li> </ul>	Architecture & Construction	<ul style="list-style-type: none"> <li>• Architects</li> <li>• Civil Engineers</li> <li>• Civil Engineering Technicians</li> <li>• Surveyors</li> <li>• Drafters</li> <li>• Cost Estimators</li> </ul>
Arts, A/V Technology & Communications	<ul style="list-style-type: none"> <li>• Graphic Designers</li> <li>• Telecommunications</li> <li>• Multimedia Artists &amp; Animators</li> <li>• Audio Technicians</li> </ul>	Business Management & Administration	<ul style="list-style-type: none"> <li>• Accountants</li> <li>• Auditors</li> <li>• Operations Research Analysts</li> </ul>
Finance	<ul style="list-style-type: none"> <li>• Actuaries</li> <li>• Financial Analysts</li> <li>• Financial Planners</li> <li>• Loan Officers</li> <li>• Investment Bankers</li> </ul>	Government & Public Administration	<ul style="list-style-type: none"> <li>• Patent Officer</li> <li>• Cryptographers</li> <li>• Policy Analysts</li> <li>• Climate Change Analysts</li> <li>• Intelligence Analysts</li> </ul>

# STEM Across the Career Clusters<sup>®</sup>



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December 2013

CAREER CLUSTER	SAMPLE STEM CAREERS	CAREER CLUSTER	SAMPLE STEM CAREERS
Information Technology	<ul style="list-style-type: none"> <li>• Programmers</li> <li>• Hardware, Software Engineers</li> <li>• Computer Support Specialists</li> <li>• Information Security Analysts</li> <li>• Database Administrators</li> <li>• Webmasters</li> <li>• Video Game Designers</li> </ul>	Law, Public Safety, Corrections & Security	<ul style="list-style-type: none"> <li>• EMTs</li> <li>• Firefighter/Inspectors</li> <li>• Fire-Prevention and Protection Engineers</li> <li>• Brownfield Redevelopment Specialists and Site Managers</li> </ul>
Manufacturing	<ul style="list-style-type: none"> <li>• Aircraft Mechanics and Service/Avionics Technicians</li> <li>• Automotive Mechanics</li> <li>• Mechanical Engineers</li> <li>• Electronics Engineering Technicians</li> <li>• Wind Turbine Service Technicians</li> <li>• Welders</li> </ul>	Marketing	<ul style="list-style-type: none"> <li>• Interactive Media Specialists</li> <li>• Market Researchers</li> <li>• Forecasting Managers</li> <li>• Inventory Manager/Analysts</li> </ul>
STEM	Any/all of careers listed	Transportation, Distribution & Logistics	<ul style="list-style-type: none"> <li>• Transportation Planners</li> <li>• Transportation Engineers</li> <li>• Occupational Health and Safety Technicians</li> </ul>

# Job Forecasts for STEM Careers

- The **Eligibility Chart** is organized to include the Job Descriptions of persons receiving education and training for each CIP.
- There are 13 unique occupations in STEM, identified in the Eligible STEM CIPs (NOTE: STEM occupations not limited to just these SOCs).
- Each Standard Occupational Code (SOC) code includes information on:
  - Potential Apprenticeships
  - Median Wages for State & National
  - Employment Trends for State & National
  - “Green” occupation designation

# STEM Job Forecasts

SOC* Job Titles	Median Wages - NJ	Median Wages - National	Employment Trends - NJ	Employment Trends - National	Green? Y/N
Natural Sciences Managers	\$155,000	\$115,700	7%	8%	Y
Architectural and Engineering Managers	\$134,100	\$124,900	8%	9%	Y
Aerospace Engineers	\$115,500	\$103,700	6%	5%	Y
Managers, All Other	\$111,300	\$100,900	6%	8%	Y
Chemical Engineers	\$101,000	\$94,300	3%	6%	Y
Civil Engineers	\$86,200	\$79,300	16%	19%	Y
Environmental Engineers	\$83,600	\$80,900	15%	22%	Y
Biomedical Engineers	\$81,800	\$87,000	55%	62%	N
Cost Estimators	\$73,000	\$58,900	28%	36%	N
Surveyors	\$65,500	\$56,200	21%	25%	N
Electrical and Electronics Engineering Technicians	\$62,200	\$57,800	-1%	2%	Y
Electro-Mechanical Technicians	\$51,300	\$51,800	-2%	1%	Y
Environmental Engineering Technicians	\$43,400	\$45,300	16%	24%	Y
<b>Average</b>	<b>\$89,531</b>	<b>\$81,285</b>	<b>14%</b>	<b>17%</b>	

# Teacher Certifications

Pathway Alignment	Certification Name	Certification Number
Engineering & Technology	Chemical Technology	4172
Engineering & Technology	Computer Network Systems	4146
Engineering & Technology	Computer Systems Engineering	4149
Engineering & Technology	Electrical Technology	4173
Engineering & Technology	Electronics Technology	4174
Engineering & Technology	Engineering Technology	2545
Engineering & Technology	Environmental Service Systems	2505
Science & Mathematics	Health Occupations	4224
Science & Mathematics	General Health Sciences	4200

Licensure Crosswalk Chart for Old and New CTE Endorsements:

<http://www.state.nj.us/education/educators/license/cte/>

# Program vs. Program of Study

# What is a Career & Technical Education (CTE) Program?

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- Coherent and rigorous sequence of courses (at least three)
- Organized under a CIP code (Classification of Instructional Program)
- Provides technical skill proficiency, an industry-recognized credential, a certificate or an associate degree.
- Includes applied learning that contributes to the academic knowledge, technical and employability skills, work attitudes, and knowledge of all aspects of an industry.

GLOBAL  
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ECONOMIC  
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EXPERIENCE

# Program or Program of Study?

CTE Program	CTE Program of Study
<p>Prepares students for entry-level employment in a specific occupation, and is aligned with business/industry standards;</p>	<p>All of the program elements to the left and ADDING the following:</p> <div data-bbox="981 539 1883 791" style="border: 2px solid #00AEEF; padding: 10px;"> <p>Incorporates and aligns secondary and postsecondary education elements such as curricula, standards and assessment;</p> </div> <div data-bbox="981 858 1883 1109" style="border: 2px solid #00AEEF; padding: 10px;"> <p>Provides students with opportunities to earn college credit for college courses successfully completed during high school;</p> </div> <div data-bbox="981 1176 1883 1310" style="border: 2px solid #00AEEF; padding: 10px;"> <p>Includes an articulation agreement or memorandum of understanding.</p> </div>
<p>Coherent sequence of 3 or more courses;</p>	
<p>May lead to an industry-recognized credential/certificate at the secondary level;</p>	
<p>Incorporates opportunities to participate in structured learning experiences and career and technical student organizations (CTSO);</p>	
<p>Incorporates applied, contextual, cross curricular and interdisciplinary instructional strategies into the curricula.</p>	

# Types of Articulations

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- **Advanced Standing**
- **Articulated Credit** - College credits students earn for successfully completing an articulated course are “banked” at the community college until the student enrolls in a program at that college.
- **Concurrent/Transcripted/Dual Credit** - Students simultaneously earn both credits towards high school graduation requirements, and college credits for successfully completing a POS course.

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# Application Required Information

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- Type of credit
  - Advanced Standing
  - Articulated Credit
  - Dual Credit
- Institution name
- High School Course(s) articulated
- College Course(s) articulated
- Number of Credits



# Rules of the Road

- **Some Don'ts!**
  - Do not select A.A. (Associate of Arts) programs;
  - Do not select General Studies or Liberal Arts degree programs;  
and,
  - Do not select Continuing Education programs (i.e. non-credit bearing programs).

# Rules of the Road-cont.

- **Some Do's!!**
  - Select **Certificate of Achievement** or **Certificate** programs that include at least 12 college credits that promote technical/skill proficiency;
  - Select **A.S. (Associate of Science)** degree programs that include at least 15 college credits that promote technical/skill proficiency;
  - Select any **A.A.S (Applied Associate of Science)** degree program
  - Select a **Registered Apprenticeship Program** with an existing apprenticeship program sponsor

# Questions on Career Forecast, Teacher Certifications, or Programs of Study (POS)?

# Required Program Elements

**Advisory Committee**

**Technical Skills Assessments**

**Structured Learning Experiences**

**Career and Technical Student Organizations**

# Advisory Committee

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## Members:

- Business/Industry /Labor member(s) with expertise in the CTE program or program of study
- CTE Teacher(s) of the CTE program or program of study
- School Counselor
- Postsecondary Institution
- District Representative for Special Populations
- Parent
- Student
- Other - not required but may include teachers in relevant academic areas and school administrators such as department chairpersons and/or supervisors.

**Minimum 2 meetings per school year**



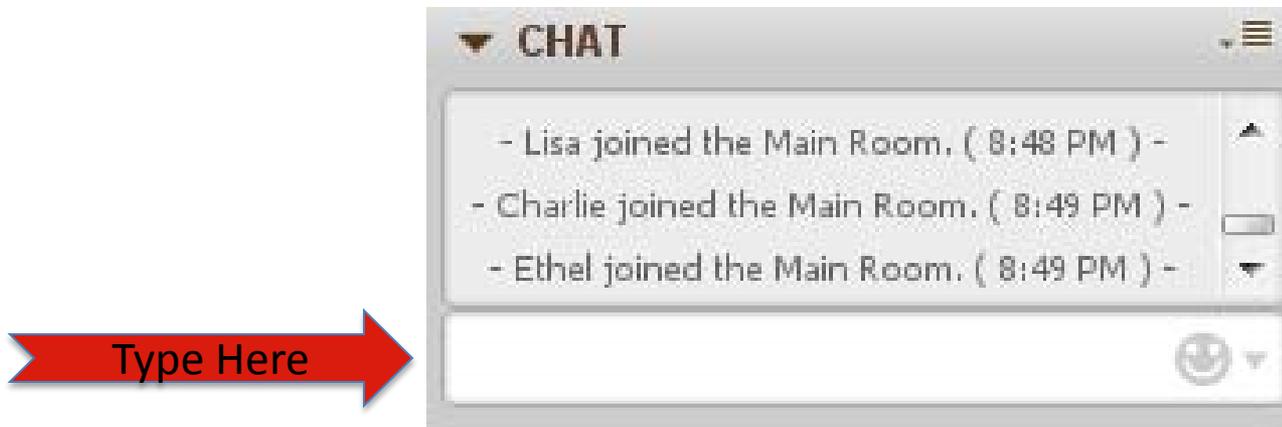
# Advisory Committee

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- Required Information/Uploads:
  - Dates of last two meetings
  - Upload meeting minutes
- Advisory Committee Handbook
  - [NJ OCTE Advisory Committee Handbook](#)

# How Are You Using Your Advisory Committee?

- Please Share Using Chat Window
  - Strategies in creating a successful and productive Advisory Committee
  - Examples of Input from an Advisory Committee
  - Suggestions and Feedback for Best Practices



# Technical Skills Assessment

1. Every CTE Program/POS, where available, **MUST** administer a ***third-party end-of-program assessment***.
  - New Jersey [Recognized Technical Skills Assessments](#)
2. If there is no NJDOE recognized assessment listed for a particular CIP, an **alternate vendor assessment** may be listed.
3. If an alternate vendor assessment is not available, a **teacher-made and approved** assessment may be listed.
  - ❖ If option 2 or 3 is used, a justification must be provided. Be aware that the student outcomes **do not count** toward meeting the performance indicator if option 2 or 3 is used.
  - ❖ If you have a possible third-party end-of-program assessment that is applicable but not recognized by NJDOE, please inform your program officer so that we can review and possibly approve.

# Structured Learning Experiences

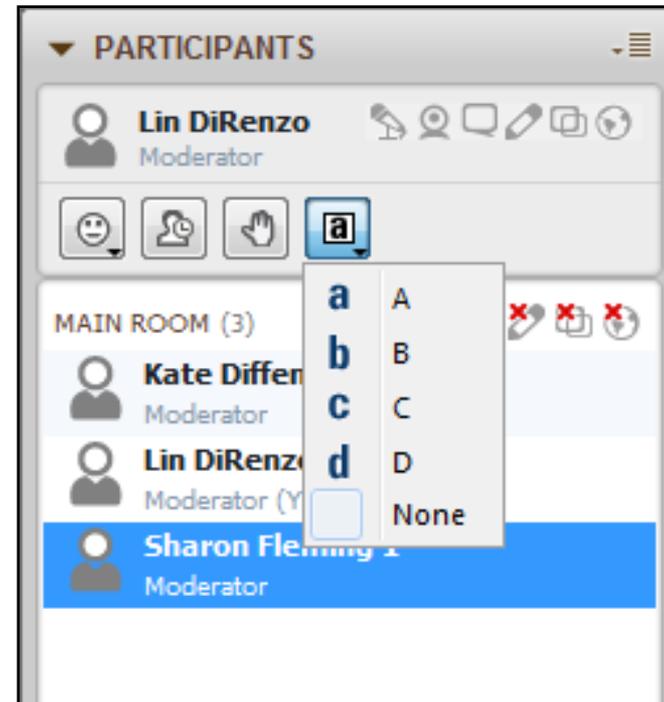
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- Types
  - **Job Shadowing** (career exploration, any age, observation and interviews only, no hands-on)
  - **Volunteering/Community Service/Service Learning** (career exploration, 16 or older, at a non-profit or government agency only, civic engagement, work readiness skills)
  - **Internship** (Career preparation, 16 or older, paid or unpaid, entry-level job skills, work readiness skills)
  - **Cooperative Education Experience** (Career preparation, paid, credit-bearing course, advanced occupational and work readiness skills)
- <http://www.state.nj.us/education/cte/sle/>

# District's Share for SLEs

Using the Polling Feature, please select from the following:

- A. Job Shadowing**
- B. Volunteering**
- C. Internship Paid**
- D. Internship Unpaid**
- E. Cooperative Education Experience**



# CTSO-TSA

## NJ State Advisor

Alison Goeke

Email:

[goeke2@tcnj.edu](mailto:goeke2@tcnj.edu)

PO Box 7718

609-771-3244

Ewing, NJ

08628-0718

FAX

609-771-3330

## Website Addresses

**New Jersey:**

<http://njtsa.pages.tcnj.edu/>

**National:**

<http://www.tsaweb.org/>

- Animatronics
- Biotechnology Design
- Computer-Aided Design (CAD) 3D, Engineering
- Computer Numerical Control (CNC) Production
- Debating Technological Issues
- Dragster Design
- Engineering Design
- Fashion Design
- Flight Endurance
- Future Technology Teacher
- Manufacturing Prototype
- Music Production
- Open Source Software Development
- Photographic Technology
- SciVis
- Structural Engineering
- System Control Technology
- Technical Sketching and Application
- Technology Problem Solving
- Transportation Modeling
- Video Game Design

# CTSO-HOSA

## NJ State Advisor

Antoinette M. Fugee

Email:

[afugee@gccnj.edu](mailto:afugee@gccnj.edu)

1492 Tanyard Road  
Sewell, NJ 08080

Phone: 856-468-5000  
x2273  
FAX: 856-468-7974

## Website Addresses

**New Jersey:**

[www.njhosa.org](http://www.njhosa.org)

**National:**

<http://www.hosa.org>

- Dental Terminology
- Medical Spelling
- Medical Terminology
- Medical Math
- Medical Reading
- Biotechnology
- Clinical Nursing
- Dental Science
- Home Health Aide
- Medical Assisting
- Nursing Assisting
- Personal Care (Level 2)
- Sports Medicine
- Knowledge Tests
- CPR/First Aid
- Emergency Medical Technician
- Life Support Skills
- Biomedical Debate
- Health Career Display
- Creative Problem Solving

# Questions on:

**Advisory Committee**

**Technical Skills Assessments**

**Structured Learning Experiences**

**Career and Technical Student Organizations**

# State & National STEM Program Supports

# NJ CTE-STEM Current Curricula



Provider	Program	9th Grade Course	10th Grade Course	11th Grade Course	12th Grade Course	Impact in NJ	Post-secondary Partner(s)	CTSO
CTEP-STEM/ NJ OCTE	<b><i>Socially Responsible Engineering &amp; Technology</i></b>	Technology, Engineering & Social Responsibility	Sustainable Engineering Design	Exploring Careers & Issues in Socially Responsible Engineering	Senior Design Capstone	Piloted in 2 NJ districts; implementing Year 2 of 4 curriculum	GCC	TSA
Project Lead the Way	<b><i>Engineering</i></b>	Introduction to Engineering	Principles of Engineering	Digital Electronics or Architecture & Civil Engineering	Engineering Development & Design	48 schools (15 certified)	Rowan University, NJIT, RIT	TSA
	<b><i>Biomedical Sciences</i></b>	Principles of Biomedical Science	Human Body Systems	Medical Interventions	Biomedical Innovation	5 schools	TBD	HOSA
Engineering by Design	<b><i>Technology and Engineering</i></b>	Foundations of Technology	Technological Issues or Technological Design	Advanced Technological Applications or Advanced Design Applications	Engineering Design (Capstone)	TBD	TBD	TSA

# NJ CTE-STEM Current Curricula



Provider	Program	Professional Development Provider	Contact Information
CTEP-STEM/ NJ OCTE	<i>Socially Responsible Engineering &amp; Technology</i>	TBD	Kate Diffenderfer, CTEP-STEM OCTE Project Manager <a href="http://ctep.pages.tcnj.edu/">http://ctep.pages.tcnj.edu/</a>
Project Lead the Way	<i>Engineering</i>	Rowan University	Glynis O’Leary, Director of School Engagement - PLTW Email: <a href="mailto:goleary@pltw.org">goleary@pltw.org</a>  <a href="http://www.pltw.org">www.pltw.org</a>
	<i>Biomedical Sciences</i>		Doug Cleary, PLTW Affiliate University Partner Email: <a href="mailto:cleary@rowan.edu">cleary@rowan.edu</a>
Engineering by Design	<i>Technology and Engineering</i>	The College of New Jersey (TCNJ)	Chris Anderson, Project Director Email: <a href="mailto:canderso@tcnj.edu">canderso@tcnj.edu</a>  <a href="http://ebdnj.pages.tcnj.edu/">http://ebdnj.pages.tcnj.edu/</a>

# Industry Credentials & Certifications

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## CREDENTIALS:

National [Resource Document](#) for:

- Education and Industry Licenses
- Education and Industry Certificates

## CERTIFICATIONS:

The resource is provided as an Excel workbook with 16 separate worksheets for each of the 16 Career Clusters. The inclusion of the resource does not imply endorsement by NASDCTEc or NJDOE

[\*\*Benchmarks and Certifications by Career Cluster®\*\*](#)

See more at: <http://www.careertech.org/career-clusters/resources/credentials.html>

# Postsecondary Linkages

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- National [Resource Document](#) for:
  - Postsecondary Degree Options
- New Jersey Resource Documents
  - In Perkins Guidelines, [Articulation Specialists](#) at NJ Community Colleges (Page 74)  
<http://www.nj.gov/education/cte/study/approval/>
  - Listing Postsecondary Options
    - By Institution
    - By CIP

# Examples of Current Postsecondary Partners



GLOBAL  
COMPETITIVENESS  
SUCCESS  
LEADING CHANGE  
CAREER  
READINESS  
STUDENT  
COLLEGE & CAREER  
ECONOMIC VITALITY  
LEADERSHIP  
HIGH-DEMAND  
OPPORTUNITY  
SKILLS  
SUSTAINABLE  
WORKFORCE  
LEADING CHANGE  
COLLEGE & CAREER  
WORLD CLASS  
HIGHER  
RATES  
STUDENT  
SUCCESS  
CAREER  
WORLD CLASS  
LEADERSHIP  
ECONOMIC  
ENTREPRENEURSHIP  
LEADING CHANGE  
MAKING  
DIFFERENT  
CAREER  
READINESS  
HIGH-DEMAND  
OPPORTUNITY  
STUDENT  
SUCCESS  
ECONOMIC  
TRANSPARENCY  
EXPERIENCE



# **STEM**

# **Program Reapprovals**

**Applications due: May 16, 2014**

# Summary

- **To ensure our students receive the best preparation:**
  - Review STEM Career outlooks for both wages and employment trends
  - Review CIP descriptions to determine eligibility and that your curriculum aligns
  - Ensure teaching staff is qualified
  - Your Advisory Committee, Structured Learning Experiences, CTSO and Technical Skills Assessments are aligned to cluster and are working in tandem to inform and guide student learning

# Questions?

## The STEM Career Cluster® Team

LEAD: Kate Diffenderfer  
Anne Freeman  
Charlotte Gray

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**Thank You!**