



To: Indiana State Board of Education (SBOE)

Date: December 1, 2017

Subject: Career & Technical Education (CTE) Program Categorizations and Funding Recommendations

Pursuant to Indiana Code (IC) [20-43-8-7.5](#), the Indiana Department of Workforce Development (DWD) submits the following report, providing recommendations to the Indiana State Board of Education (SBOE) on Career and Technical Education (CTE) program designations. The report outlines the methodology and the labor market information used to make such designations in determining tuition support funding that school corporations will receive for students enrolled in CTE courses during the 2018-2019 school year.

Background

Prior to Senate Enrolled Act 198-2017 (P.L. 230), CTE programs were designated¹ into one of fourteen categories with corresponding, statutorily defined² funding amounts as shown below:

State CTE Funding - Enrollment Reimbursement Rates Per Credit Hour			
	High Wage	Moderate Wage	Low Wage
More than Moderate Labor Market Demand	\$500	\$450	\$300
Moderate Labor Market Demand	\$450	\$300	\$225
Less than Moderate Labor Market Demand	\$300	\$225	\$150

State CTE Funding - Enrollment Reimbursement Rates Per Pupil	
Foundational	\$150
Introductory	\$300
Work-Based Learning	\$300
Cooperative Education Course	\$300
Apprenticeship	\$300

¹ The Indiana Department of Education (DOE) designated per pupil funded courses and how a course would be funded using DWD demand and wage labor market data.

² IC 20-43-8-12 (prior to SEA 198-2017)

These category designations are based on a funding per pupil/per credit hour formula or just per pupil formula e.g. foundational courses. To evaluate the nine course designations impacted by DWD demand and wage labor market information, a classification of instructional programs (CIP) to standard occupation codes (SOC) crosswalk⁴ was completed by DOE and DWD based on a National Center for Education Statistics (NCES) model that aligned CTE courses with occupations. The occupations used in the modeling were matched to the course standards that directly aligned with the skills needed for those occupations.⁵

The demand and wage data used to designate each program were set by DWD via a “2014 Report” (IC 20-43-8-12), which was used as the basis for school year 2014-2015, 2015-2016 and 2016-2017 CTE tuition support funding.⁶ The wage and demand definitions used in the “2014 Report” were:

Wage definitions:

- “High wage” is \$13.01 and above;
- “Moderate wage” is the average wage between \$8.01 and \$13.00; and
- “Less than moderate wage” is \$8.00 and below.

Demand definitions:

- More than moderate implies a demand level of 801 or higher total long-term projected openings
- Moderate demand implies a demand level of 201 to 800 total long-term projected openings
- Less than moderate demand implies a demand level of 200 or less total long-term projected openings

The 2015 budget changed the CTE per credit funding amount for high, moderate, and less than moderate wage/demand courses to be \$150 per pupil for foundational courses, \$300 per pupil for work-based learning course, and Introductory courses (\$300) were flat funded.

Senate Enrolled Act 198-2017; Public Law 230-2017

In 2017, the Indiana General Assembly tasked DWD with assigning CTE program designations and utilizing an updated methodology for advanced, CTE courses. P.L. 230-2017 consolidated the current nine wage and demand categories currently being used into three distinct categories: high value, moderate value, and less than moderate value; while maintaining

³ Previous language in IC 20-43-8-12 stated: “The number of pupils participating in a career and technical education program in which pupils from multiple schools are served at a common location would receive an additional \$150 to the course funding amount as otherwise specified.

⁴ CIP is a standardized, numerical classification assigned to each individual CTE program. A SOC is also a standardized, numerical classification system that is used by federal agencies to classify workers into occupational categories. Sources: [Classification of Instructional Programs](#) (CIP) and [Standard Occupational Classification](#) (SOC).

⁵ Bureau of Labor Statistics – [2010 SOC Crosswalks](#)

⁶ [2014 CTE Annual Report](#)

current funding levels for introductory and foundational programs. Apprenticeships, cooperative education courses, work-based learning courses were changed from \$300 per pupil to \$150 per pupil.

Funding is also maintained for students participating in a CTE program in which students from multiple schools are served at a common location (area participation), however the criteria for eligibility has been revised. Eligibility is now restricted to only those students who travel from the school in which they are currently enrolled to the conducting school for the instruction. A summary is provided below:

State CTE Funding – Enrollment Reimbursement Rates Per Credit Hour	
High Value Program	\$680
Moderate Value Program	\$400
Less than Moderate Value Program	\$200

State CTE Funding - Enrollment Reimbursement Rates Per Pupil	
Introductory	\$300
Apprenticeship	\$150
Cooperative Education Course	\$150
Foundational	\$150
Work-Based Learning	\$150
Area Participation Program	\$150

Additionally, P.L. 230-2017 mandates that any future CTE program be approved by DWD in order for a school corporation to receive a CTE enrollment grant.⁷

Updated CIP-SOC Crosswalk

CTE Pathways Group – Reclassifying the CTE CIP-SOC Crosswalk

In October of this year, the DOE initiated a review of CTE pathways by establishing “pathway committees,” which were led by a designated pathway specialist from DOE. The first agenda item for each committee was to review the CIP-SOC crosswalk for each of the courses in their respective pathway. Identifying the appropriate SOC code that aligned with the corresponding CIP (CTE) program was critical in determining the occupational pathway each CTE program was teaching towards to assign demand and wage ranking outcomes. Each pathway committee then submitted their recommendations to the DWD.

It is important to note that representatives from the private sector, DOE, DWD, and secondary/postsecondary education participated in the committee work.

IN Demand Ranking Methodology

⁷ [P.L. 230-2017](#)

Indiana has established an occupational demand ranking system designated by “flames.” An occupation will be assigned between 1 and 5 flames, depending on how “in demand” that occupation is in Indiana. The more flames associated with an occupation, the more in-demand and higher wage that occupation is in comparison to other occupations. The methodology for the occupational demand ranking system is detailed below.⁸

Each occupation in Indiana is designated a 1-10 score in 5 categories:

1. Total Openings (X2);⁹
2. Growth Openings (for both short term and long term outlook);
3. Percentage Change;
4. Real Time Labor Market Information; and
5. Wages.¹⁰

The scoring method is determined by deciles or, in other words, a percentile system ranging from the 90th percentile down to the 10th percentile and under. The averaged total for each occupation is then divided by two to produce an Indiana Demand Ranking in both outlooks. Lastly, both the short term and long term outlook Indiana Demand Ranking scores for each occupation are averaged to calculate the occupation’s final rating. Because occupational demand drives the ranking of occupations, median wage levels can vary within each scoring threshold, however a wage rule is in place to prevent low wage, high demand occupations from scoring within the 3 to 5 flame categories. Any occupation scoring 3 or 4 (out of 10) in the wage category cannot score higher than 3 flames, and any occupation scoring 1 or 2 (out of 10) in the wage category cannot score higher than 2 flames.

Scoring Mechanism

Indiana Demand Ranking scores per occupation code were averaged by the occupation grouping determined to align with each CTE course program code (CIP). Less than moderate value courses were determined by having an average score within a 0.00-2.99 threshold. Moderate value courses were determined by having an average score within a 3.00-3.49 threshold, and high value courses were determined by having an average score between 3.5 and 5.00.

New Flame Funding Levels with Flames Thresholds		
Course Designation	Flame Threshold	Reimbursement Rate (per Credit/per Pupil)
Less than Moderate Value	0.00-2.99	\$200
Moderate Value	3.00-3.49	\$400
High Value	3.50-5.00	\$680

⁸ [IN Demand Flame Methodology](#)

⁹ Demand is double weighted, hence the “(2X).”

¹⁰ Wages are calculated using 2016-2018 short term projections and 2014-2024 long term projections and Bureau of Labor Statistics Occupational Employment Statistics wage estimates.

IDOE Course Code	IDOE Course Name	Cluster/ Subject Area	Credits Per Semester	Max Credits Allowed	CTE Funding Threshold	CTE Funding Level
5530	3-D Computer Animation and Visualization	AV	1-3	6	Less Than Moderate Value	\$200
5268	Administrative and Office Management	BFM	1-2	4	High Value	\$680
5330	Adult Roles and Responsibilities	ED	1	1	Foundational	\$150
4522	Advanced Accounting	BFM	1	2	Moderate Value	\$400
5360	Advanced Child Development	ED	1	2	Introductory	\$300
5070	Advanced Life Science: Animals (L)	AG	1	2	Moderate Value	\$400
5072	Advanced Life Science: Foods (Chemistry of Foods) (L)	AG F&CS	1	2	Moderate Value	\$400
5074	Advanced Life Science: Plants and Soils (L)	AG	1	2	Less Than Moderate Value	\$200
5608	Advanced Manufacturing I	MAN	1-3	6	High Value	\$680
5606	Advanced Manufacturing II	MAN	1-3	6	High Value	\$680
5340	Advanced Nutrition and Wellness	HHS	1	2	Introductory	\$300
5518	Aerospace Engineering non PLTW	ENGI	1	2	High Value	\$680
4816	Aerospace Engineering PLTW	ENGI	1	2	High Value	\$680
5002	Agribusiness Management	AG	1	2	Moderate Value	\$400
5088	Agriculture Power, Structure and Technology	AG	1-3	6	High Value	\$680
5276	Anatomy & Physiology	HS	1	2	High Value	\$680
5008	Animal Sciences	AH	1-3	6	Moderate Value	\$400
5640	Architectural Drafting and Design I	A&C	1-3	6	Moderate Value	\$400
5652	Architectural Drafting and Design II	A&C	1-3	6	Moderate Value	\$400
5514	Automotive Collision Repair I	T&L	1-3	6	Moderate Value	\$400
5544	Automotive Collision Repair II	T&L	1-3	6	Moderate Value	\$400
5510	Automotive Services Technology I	T&L	1-3	6	High Value	\$680
5546	Automotive Services Technology II	T&L	1-3	6	High Value	\$680
5524	Aviation Flight	T&L	1-3	6	Moderate Value	\$400

5520	Aviation Maintenance I	T&L	1-3	6	Moderate Value	\$400
5522	Aviation Maintenance II	T&L	1-3	6	Moderate Value	\$400
5528	Aviation Operations	T&L	1-3	6	Moderate Value	\$400
5258	Banking and Investment Capstone	BFM	1-3	6	Moderate Value	\$400
5344	Biochemistry of Foods (L)	F&CS	1-3	6	Moderate Value	\$400
5593	Building & Facilities Maintenance I	A&C	1-3	6	Moderate Value	\$400
5594	Building & Facilities Maintenance II	A&C	1-3	6	Moderate Value	\$400
5592	Building and Facilities Management I	A&C	1-3	6	High Value	\$680
5595	Building and Facilities Management II	A&C	1-3	6	High Value	\$680
4560	Business Law and Ethics	BFM	1	2	Less Than Moderate Value	\$200
5239	Career & Technical Education Pilot Course: (Insert title descriptive of course content)	CTE	1-3	6	Pilot	\$300
5362	Child Development	ED	1	1	Foundational	\$150
5650	Civil Engineering and Architecture non PLTW	ENGI	1	2	High Value	\$680
4820	Civil Engineering and Architecture PLTW	ENGI	1	2	High Value	\$680
5570	Commercial Photography	AV	1-3	6	Moderate Value	\$400
5534	Computer Integrated Manufacturing non PLTW	ENGI	1	2	High Value	\$680
4810	Computer Integrated Manufacturing PLTW	ENGI	1	2	High Value	\$680
4801	Computer Science I	IT	1	2	High Value	\$680
5250	Computer Science II: Databases	IT	1-3	6	High Value	\$680
5251	Computer Science II: Informatics	IT	1-3	6	High Value	\$680
5236	Computer Science II: Programming	IT	1-3	6	High Value	\$680
5252	Computer Science II: Special Topics	IT	1-3	6	High Value	\$680
5230	Computer Tech Support	IT	1-3	6	High Value	\$680
4800	Computers in Design and Production	MAN	1	2	Introductory	\$300
5496	Construction Technology HVAC I	A&C	1-3	6	High Value	\$680

5498	Construction Technology HVAC II	A&C	1-3	6	High Value	\$680
5580	Construction Trades I	A&C	1-3	6	High Value	\$680
5578	Construction Trades II	A&C	1-3	6	High Value	\$680
4830	Construction Trades: Electrical I	A&C	1-3	6	High Value	\$680
4832	Construction Trades: Electrical II	A&C	1-3	6	High Value	\$680
5497	Construction Trades: Heavy Equipment I	A&C	1-3	6	High Value	\$680
5495	Construction Trades: Heavy Equipment II	A&C	1-3	6	High Value	\$680
5334	Consumer Economics	F&CS	1	1	Foundational	\$150
5802	Cosmetology I	HHS	1-3	6	Less Than Moderate Value	\$200
5806	Cosmetology II	HHS	1-3	6	Less Than Moderate Value	\$200
5822	Criminal Justice I	PS	1-3	6	Moderate Value	\$400
5824	Criminal Justice II Advanced	PS	1-3	6	Moderate Value	\$400
5440	Culinary Arts and Hospitality I	HHS	1-3	6	Less Than Moderate Value	\$200
5346	Culinary Arts and Hospitality II: Culinary Arts	HHS	1-3	6	Less Than Moderate Value	\$200
5458	Culinary Arts and Hospitality II: Hospitality Management	HHS	1-3	6	Moderate Value	\$400
5203	Dental Careers I	HS	1-3	6	High Value	\$680
5204	Dental Careers II	HS	1-3	6	High Value	\$680
5620	Diesel Service Technology I	T&L	1-3	6	High Value	\$680
5624	Diesel Service Technology II	T&L	1-3	6	High Value	\$680
4826	Digital Electronics PLTW	ENGI	1	2	High Value	\$680
5538	Digital Electronics Technology non PLTW	ENGI	1	2	High Value	\$680
5412	Early Childhood Education I	ED	1-3	6	Moderate Value	\$400
5406	Early Childhood Education II	ED	1-3	6	Moderate Value	\$400
5408	Education Professions I	ED	1-3	6	Moderate Value	\$400
5404	Education Professions II	ED	1-3	6	Moderate Value	\$400
5684	Electronics and Computer Technology I	MAN	1-3	6	High Value	\$680
5694	Electronics and Computer Technology II	MAN	1-3	6	High Value	\$680
5210	Emergency Medical Services	PS	1-3	6	Moderate Value	\$400

5616	Energy Industry I	STEM	1-3	6	Less Than Moderate Value	\$200
5618	Energy Industry II	STEM	1-3	6	Less Than Moderate Value	\$200
5698	Engineering Design and Development non PLTW	ENGI	1	2	High Value	\$680
4828	Engineering Design and Development PLTW	ENGI	1	2	High Value	\$680
5966	Entrepreneurship and New Ventures Capstone	BFM	1-3	6	Moderate Value	\$400
4818	Environmental Sustainability	ENGI	1	2	Moderate Value	\$400
5420	Fashion and Textile Careers I	F&CS	1-3	6	Less Than Moderate Value	\$200
5421	Fashion and Textile Careers II	F&CS	1-3	6	Less Than Moderate Value	\$200
5820	Fire and Rescue I	PS	1-3	6	Moderate Value	\$400
5826	Fire and Rescue II	PS	1-3	6	Moderate Value	\$400
5102	Food Science	AG	1	2	Moderate Value	\$400
5550	Graphic Design and Layout	AV	1-3	6	High Value	\$680
5572	Graphic Imaging Technology	AV	1-3	6	Less Than Moderate Value	\$200
5282	Health Science Education I	HS	1-3	6	High Value	\$680
5290	Health Science Education II: Athletic Training	HS	1-3	6	Moderate Value	\$400
5288	Health Science Education II: Medical Forensics	HS	1-3	6	Moderate Value	\$400
5284	Health Science Education II: Nursing	HS	1-3	6	High Value	\$680
5214	Health Science II: Pharmacy	HS	1-3	6	High Value	\$680
5215	Health Science II: Physical Therapy	HS	1-3	6	High Value	\$680
5286	Health Science II: Special Topics	HS	1-3	6	Moderate Value	\$400
5132	Horticultural Science	AG	1-3	6	Moderate Value	\$400
5352	Housing and Interior Design Careers I	F&CS	1-3	6	Moderate Value	\$400
5460	Housing and Interior Design Careers II	F&CS	1-3	6	Moderate Value	\$400
5336	Human and Social Services I	HHS	1-3	6	High Value	\$680
5462	Human and Social Services II	HHS	1-3	6	High Value	\$680
5366	Human Development and Wellness	HHS	1	2	Introductory	\$300

5610	Industrial Automation and Robotics I	MAN	1-3	6	High Value	\$680
5612	Industrial Automation and Robotics II	MAN	1-3	6	High Value	\$680
5686	Industrial Technical Maintenance I	A&C	1-3	6	Moderate Value	\$400
5688	Industrial Technical Maintenance II	A&C	1-3	6	Moderate Value	\$400
5232	Interactive Media	AV	1-3	6	Less Than Moderate Value	\$200
5902	Interdisciplinary Cooperative Education	WBL	1-3	6	Work Based Learning	\$150
5364	Interpersonal Relationships	HHS	1	1/1	Foundational	\$150
4524	Introduction to Accounting	BFM	1	2	Introductory	\$300
4796	Introduction to Advanced Manufacturing and Logistics	MAN	1	2	Introductory	\$300
5056	Introduction to Agriculture, Food and Natural Resources	AG	1	2	Introductory	\$300
4790	Introduction to Communication	AV	1	2	Introductory	\$300
4792	Introduction to Construction	A&C	1	2	Introductory	\$300
5438	Introduction to Culinary Arts and Hospitality	HHS	1	2	Introductory	\$300
4794	Introduction to Design Processes	AV	1	2	Introductory	\$300
4802	Introduction to Engineering Design non PLTW	ENGI	1	2	Introductory	\$300
4812	Introduction to Engineering Design PLTW	ENGI	1	2	Introductory	\$300
5380	Introduction to Fashion and Textiles	F&CS	1	2	Introductory	\$300
5272	Introduction to Health Science Careers	HS	1	2	Introductory	\$300
5350	Introduction to Housing and Interior Design	A&C	1	2	Introductory	\$300
4784	Introduction to Manufacturing	MAN	1	2	Introductory	\$300
5614	Introduction to the Energy Industry	STEM	1	2	Introductory	\$300
4798	Introduction to Transportation	T&L	1	2	Introductory	\$300
5136	Landscape Management I	AG	1-3	6	Less Than Moderate Value	\$200
5137	Landscape Management II	AG	1-3	6	Less Than Moderate Value	\$200

5982	Marketing in Hospitality	BFM	1	2	Moderate Value	\$400
4836	Mechanical Drafting and Design I	A&C	1-3	6	Moderate Value	\$400
4838	Mechanical Drafting and Design II	A&C	1-3	6	Moderate Value	\$400
5274	Medical Terminology	HS	1	2	High Value	\$680
5962	Merchandising	BFM	1	2	Moderate Value	\$400
5180	Natural Resources	AG	1	2	Less Than Moderate Value	\$200
5234	Networking I	IT	1-3	6	High Value	\$680
4588	Networking II: Infrastructure	IT	1-3	6	High Value	\$680
5257	Networking II: Servers	IT	1-3	6	High Value	\$680
5342	Nutrition and Wellness	HHS	1	1	Foundational	\$150
5456	Nutrition Science Careers I	F&CS	1-3	6	Less Than Moderate Value	\$200
5457	Nutrition Science Careers II	F&CS	1-3	6	Less Than Moderate Value	\$200
5170	Plant and Soil Science	AG	1	2	Less Than Moderate Value	\$200
5219	PLTW Biomedical Innovation	HS-B	1	2	High Value	\$680
5216	PLTW Human Body Systems	HS-B	1	2	High Value	\$680
5217	PLTW Medical Interventions	HS-B	1	2	High Value	\$680
5218	PLTW Principles of Biomedical Sciences	HS-B	1	2	High Value	\$680
5782	Precision Machining I	MAN	1-3	6	Moderate Value	\$400
5784	Precision Machining II	MAN	1-3	6	Moderate Value	\$400
5394	Preparing for College and Careers	B, F&CS	1	1	Foundational	\$150
4562	Principles of Business Management	BFM	1	2	Introductory	\$300
5644	Principles of Engineering non PLTW	ENGI	1	2	High Value	\$680
4814	Principles of Engineering PLTW	ENGI	1	2	High Value	\$680
5914	Principles of Marketing	BFM	1	2	High Value	\$680
5986	Radio and Television I	AV	1-3	6	Less Than Moderate Value	\$200
5992	Radio and Television II	AV	1-3	6	Less Than Moderate Value	\$200
5842	Recreational and Mobile Equipment I	T&L	1-3	6	Less Than Moderate Value	\$200
5844	Recreational and Mobile Equipment II	T&L	1-3	6	Less Than Moderate Value	\$200

5472	Residential Property Management Careers I	A&C	1-3	6	Moderate Value	\$400
5858	Residential Property Management Careers II	A&C	1-3	6	Moderate Value	\$400
4728	Robotics Design and Innovation	ENGI	1	2	Introductory	\$300
5984	Sports and Entertainment Marketing	BFM	1	2	Moderate Value	\$400
5918	Strategic Marketing	BFM	1-2	4	High Value	\$680
5601	Supply Chain Management and Logistics	T&L	1-3	6	High Value	\$680
5229	Sustainable Energy Alternatives	AG	1	2	Less Than Moderate Value	\$200
5622	Tractor/Trailer Operation	AV	1-3	3	High Value	\$680
5211	Veterinary Careers I	HS	1-3	6	High Value	\$680
5212	Veterinary Careers II	HS	1-3	6	High Value	\$680
5602	Warehouse Operations and Materials Handling	T&L	1-3	6	High Value	\$680
5776	Welding Technology I	MAN	1-3	6	High Value	\$680
5778	Welding Technology II	MAN	1-3	6	High Value	\$680
5975	Work Based Learning Capstone, Advanced Manufacturing	MAN	1-3	6	Work Based Learning	\$150
5260	Work Based Learning Capstone, Business and Marketing	BFM	1-3	6	Work Based Learning	\$150
5480	Work Based Learning Capstone, Family and Consumer Sciences	F&CS	1-3	6	Work Based Learning	\$150
5207	Work Based Learning Capstone, Health Science	HS	1-3	6	Work Based Learning	\$150
5974	Work Based Learning Capstone, Multiple Pathways	WBL	1-3	6	Work Based Learning	\$150
5892	Work Based Learning Capstone, Trade and Industry	T&I	1-3	6	Work Based Learning	\$150