Methodology for Updating Programs of Strategic Emphasis In the State University System of Florida, Board of Governors 2012 – 2025 Strategic Plan

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An essential component of the 2012-2025 Strategic Plan Alignment initiative is the need to update the current State University System list of Programs of Strategic Emphasis. The Programs of Strategic Emphasis exist as one of several tools for aligning the degree production goals of the State University System with the economic and workforce needs of Florida. In addition, the Programs of Strategic Emphasis are critical to update, because they are to become a component in Performance-based Funding.

As in past revisions to the Programs of Strategic Emphasis categories and list, a meta-analysis of the current reports and data of key economic and workforce councils in Florida was conducted. These "key councils" include Enterprise Florida, Inc., Workforce Florida, Inc., the Council of 100, the Florida Chamber of Commerce, and the Agency for Workforce Innovation. Other organizations whose reports and data informed this process include the Florida Hospital Association, the Florida Center for Nursing, the Florida High-Tech Corridor, the Florida Department of Education, and the U.S. Department of Labor (USDOL).

Additionally, a number of national level reports were reviewed and their recommendations were incorporated into the analysis. Some of these reports included the Federal Science, Technology, Engineering, and Mathematics Education: 5 Year Strategic Plan; Help Wanted: Projections of Jobs and Education Requirements Through 2018; Council on Foreign Relations: US Education Reform and National Security; and An Economy that Works: Job Creation and America's Future.

The methodology used to reevaluate assumptions and forecasts that provide the framework for targeting degree programs is relatively simple.
1) Identify the recommendations of Florida's leading economic and workforce councils (key councils) and national reports (Appendix B).
2) Merge and evaluate the areas of interest and emphasis from the key councils to determine appropriate broad program categories that are in alignment (Table 1).
3) Identify specific academic programs and program clusters by CIP code* that should be included in the broad program categories (Appendix A).

*CIP is the Classification of Instructional Programs code required for reporting degrees and enrollments to the National Center for Educational Statistics and used by the Board of Governors to inventory approved degree programs in the State University System (SUS). The standardized CIP code allows for comparative data to be collected and analyzed at both the state and national level.

It became apparent that the current broad program categories should be revised and perhaps renamed to better demonstrate alignment with recommendations found in the key council reports and data. The proposed changes to the categories are shown in Table 1, and the rationale for making changes is provided for each category in Appendix A.

TABLE 1: Current and Proposed Categories:

CURRENT	PROPOSED
1. Critical Needs – Education	1. Critical Workforce - Education
2. Critical Needs – Health Professions	2. Critical Workforce - Health
3. Economic Development – Regional Workforce Demand	3. Critical Workforce – Gap Analysis
4. Economic Development – Globalization	4. Economic Development – Global Competitiveness
5. Science, Technology Engineering, and Math (STEM)	5. Economic Development - STEM
6. Critical Needs – Security and Emergency Services	

The academic degree programs associated with the proposed new categories are identified in Appendix A and the list of all affected CIP codes in the State University System Academic Program Inventory is provided in Appendix C. An expanded list of all available programs for those targeted at the two and four digit CIP code level can be accessed online at http://nces.ed.gov/ipeds/cipcode/default.aspx?y=55. It should be noted that not all of the CIP codes found in the online expanded list represent programs currently offered within the State University System. This allows for new degree programs to be appropriately categorized when they are added to the State University Academic Program Inventory.

APPENDIX A: Proposed Programs of Strategic Emphasis for the State University System of Florida, Board of Governors 2012 – 2025 Strategic Plan

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A Few Words about CIPs

The Classification of Instructional Programs (CIP) provides a taxonomic scheme that supports the accurate tracking and reporting of fields of study and program completions activity. CIP was originally developed by the U.S. Department of Education's National Center for Education Statistics (NCES) in 1980, with revisions occurring periodically since that time as new programs emerged and existing program curriculums evolved.

The CIP taxonomy is organized on three levels:
1. The two-digit series, representing the most general groupings of related educational programs (e.g., 14. Engineering)
2. The four-digit series, representing intermediate groupings of educational programs that have comparable content and objectives (e.g. 14.08 Civil Engineering)
3. The six-digit series, representing specific instructional programs with very similar content and objectives (e.g., 14.0803 Structural Engineering as a subset of Civil)

Postsecondary educational institutions use six-digit CIP codes when completing the IPEDS Completions Survey required for participation in federal financial aid programs. Six-digit codes are the most detailed program classifications within the CIP and represent the basic unit of analysis used by NCES and institutions in tracking and reporting program completions and fields of study data.

Source: NCES, *Integrated Postsecondary Education Data System* (IPEDS), online manual: http://nces.ed.gov/ipeds/cipcode/default.aspx?y=55

Proposed Categories for Programs of Strategic Emphasis with Associated CIP

1. Critical Workforce – Education *(title change)*

Critical Needs: Education is a category in the present version of the Strategic Plan that is largely based upon the Florida State Board of Education list of critical teacher shortage areas which is published annually. This list can change from year to year, but typically remains the same with only one or two additions/deletions. It is also important to consider the critical shortage list within the broader context of the workforce demand for teachers in all specialties, and, for this reason, all teacher education programs were included in the original targeted list associated with the SUS 2005-2013 strategic plan.

It is proposed that this category be renamed *Critical Workforce - Education* and that the updated program list should include all the programs related to teacher preparation and student counseling at the K-12 level. This will allow for targeting academic programs at the 4 digit CIP code level and eliminate any need for annual updates to the category due to changes in the state board list or in programmatic reorganizations at the universities.

EDUCATION CIP CODES:
- 13.01 Education, General (all)
- 13.0301 Curriculum and Instruction
- 13.10 Special Education and Teaching (all)
- 13.11 Student Counseling and Personnel Services (all)

- 13.12 Teacher Education and Professional Development, Specific Levels and Methods (all)
- 13.13 Teacher Education and Professional Development, Specific Subject Areas (all)
- 13.14 Teaching English or French as a Second or Foreign Language (all)

2. Critical Workforce - Healthcare *(title change)*

Critical Needs: Health Professions is a category in the current version of the strategic plan based primarily upon workforce projections by The Florida Hospital Association and the Florida Department of Economic Opportunity. These organizations have identified the healthcare professions that exist as critical shortage areas in Florida. In addition, a shortage of nursing faculty is frequently cited as a critical need occupation because of the direct impact on registered nurse education programs.

There are a number of health-related technology and data management programs that have emerged in recent years as high-demand and high-wage occupations. In addition, there is a growing consensus that Florida will need to expand its healthcare workforce in all related occupations as the provisions of the Affordable Care Act are implemented and the state experiences a demographic transition as the Baby Boom Generation retires.

It is proposed that this category be renamed *Critical Workforce: Healthcare* and that it should include all health related degree programs (not just healthcare practitioners) under the 51 CIP Code along with selected programs that may exist under other two-digit CIP families.

HEALTHCARE CIP CODES:
- 51 Health Professions and Related Programs (all)
- 30.1101 Gerontology

3. Critical Workforce – Gap Analysis *(title change and substantive revision)*

Economic Development: Regional Workforce Demand is a category in the current version of the strategic plan whereby universities were expected to engage sufficiently with local industries and employers to identify academic programs in high demand. If determined to be warranted, these programs would then be incorporated into a list of academic programs targeted by this category. The programs currently included in this category vary by university, and are not necessarily aligned with projected statewide workforce needs.

It is proposed that this category be replaced with *Critical Workforce – Gap Analysis* and that it include degree programs leading to the occupational categories identified as projected to be critically under-supplied in the Higher Education Access and Educational Attainment Commission's gap analysis of labor market projections and related degree production. Consequently, the academic programs included in this category will correspond to Florida's high need, high wage occupational areas identified through the gap analysis. Universities will still be expected to work with local industries and employers to identify academic programs needed to support local or regional economic development and workforce needs.

This category would only include academic programs identified in the Gap Analysis that are not included in another category of Programs of Strategic Emphasis (e.g, industrial engineering would be captured under STEM, so it is not necessary to include it under Gap Analysis).

GAP ANALYSIS CIP CODES:
- 09.0101 Speech Communication and Rhetoric.
- 09.0900 Public Relations, Advertising, and Applied Communication.
- 09.0902 Public Relations/Image Management
- 50.0409 Graphic Design
- 52.0301 Accounting
- 52.0801 Finance, General
- 52.0803 Banking and Financial Support Services
- 52.1001 Human Resources Management/Personnel Administration, General
- 52.1304 Actuarial Science
- 52.1701 Insurance
- 09.0100 Communication, General
- 50.0401 Design and Visual Communications, General
- 50.0404 Industrial and Product Design
- 52.0304 Accounting and Finance
- 52.0305 Accounting and Business/Management

4. Economic Development - Global Competitiveness (title change)

Economic Development: Globalization is a category in the current version of the strategic plan that represents more of an over-arching concept found in the various reports reviewed, rather than a specific industry or occupational area. Degree programs that assist in making the SUS globally competitive can be found throughout the system across many disciplines, especially within the sciences, engineering, and information technology programs. However, there are programs that directly support globalization through program graduates and focused research. Some of these programs have an international focus, such as international affairs, international business, international construction, international law, etc. Area studies and foreign language programs that focus on critical trade partners or foreign competitors would also fall under the broad umbrella of increasing globalization.

It is proposed that this category be renamed *Economic Development: Global Competiveness* to more clearly define its intent and that it continue to include only programs for which a strong case has been made for enhancing Florida's global competitiveness.

GLOBAL COMPETITIVENESS CIP CODES:
- 05.0103 Asian Studies/Civilization
- 05.0105 Russian, Central European, East European and Eurasian Studies
- 05.0107 Latin American Studies

- 05.0108 Near and Middle Eastern Studies
- 05.0124 French Studies
- 05.0126 Italian Studies
- 05.0134 Latin American and Caribbean Studies
- 05.0201 African-American/Black Studies
- 13.0701 International and Comparative Education
- 16.0101 Foreign Languages and Literatures, General
- 16.0102 Linguistics
- 16.0399 East Asian Languages, Literatures, and Linguistics, Other
- 16.0400 Slavic Languages, Literatures, and Linguistics, General
- 16.0402 Russian Language and Literature
- 16.0501 German Language and Literature
- 16.0901 French Language and Literature
- 16.0902 Italian Language and Literature
- 16.0904 Portuguese Language and Literature
- 16.0905 Spanish Language and Literature
- 22.0210 International Business, Trade, and Tax Law
- 30.2001 International/Global Studies
- 45.0901 International Relations and Affairs
- 52.1101 International Business/Trade/Commerce
- 52.1502 International Real Estate - CIP assigned by BOG staff (does not exist in NCES)

5. Economic Development – STEM (title change)

Science, Technology, Engineering, and Math (STEM) is a category in the current version of the strategic plan and it is proposed that it be retained and renamed *Economic Development – STEM* to emphasize the importance of these programs to Florida's economy. The broad category of STEM encompasses programs associated with the six subcategories listed below.

- Mechanical science and manufacturing
- Natural science and technology
- Medical science and technology
- Computer science and technology
- Design and construction
- Electronic media and simulation

Many of the STEM academic programs can be targeted at the two-digit CIP level and others can be targeted at the four-digit level. However, there are STEM related degrees embedded in disciplines that are not generally associated with science, technology, engineering, and math. These have also been included in the list of STEM CIP codes.

STEM CIP CODES:
- 01.00 Agriculture, General (FAMU Ag Science Programs)
- 01.09 Animal Sciences
- 01.10 Food Science and Technology
- 01.11 Plant Sciences

- 01.12 Soil Sciences
- 03 Natural Resources and Conservation (all)
- 11 Computer and Information Sciences and Support Services (all)
- 14 Engineering (all)
- 15 Engineering Technologies and Engineering-Related Fields (all)
- 26 Biological and Biomedical Sciences (all)
- 27 Mathematics and Statistics (all)
- 30.01 Biological and Physical Sciences
- 30.06 Systems Science and Theory
- 30.08 Mathematics and Computer Science
- 30.10 Biopsychology
- 30.15 Science, Technology and Society
- 30.16 Accounting and Computer Science
- 30.17 Behavioral Sciences
- 30.18 Natural Sciences
- 30.19 Nutrition Sciences
- 30.25 Cognitive Science
- 30.30 Computational Science
- 30.31 Human Computer Interaction
- 30.32 Marine Sciences
- 30.33 Sustainability Studies
- 40 Physical Sciences (all)
- 04.0201 Architecture
- 04.0401 Environmental Design/Architecture
- 04.0601 Landscape Architecture
- 09.0702 Digital Communication and Media/Multimedia
- 13.0501 Educational/Instructional Technology
- 31.0505 Kinesiology and Exercise Science
- 42.2706 Physiological Psychology/Psychobiology
- 43.0106 Forensic Science and Technology
- 43.0111 Criminalistics and Criminal Science
- 43.0116 Cyber/Computer Forensics and Counterterrorism
- 45.0702 Geographic Information Science and Cartography
- 50.0102 Digital Media
- 52.1201 Management Information Systems, General
- 52.1301 Management Science

If any SUS institution would like to add additional programs, not included in the STEM list, an argument can be made for their addition. This is most likely to happen with new and emerging disciplines at the time a new degree program is implemented.

6. **Critical Needs – Security and Emergency Services (deleted)**

Critical Need: Security and Emergency Services is a category in the current version of the strategic plan intended to address the needs of homeland security and disaster preparedness, which were identified in two key council reports as important emerging areas of interest. However, the current editions of these reports are no longer emphasizing a critical need in Florida for these types of programs. While they certainly remain important, it does not appear that continuing to include them as a Program of Strategic Emphasis is warranted. It is proposed that this category be eliminated and that the science and technology related programs currently in this category be included in the STEM category.

APPENDIX B: Summary of Key Council Reports and Data

State-Level Reports and Data

Enterprise Florida Industry Sectors & Roadmap to Florida Futures (2012)	eFlorida (Enterprise Florida) Qualified Targeted Industries for Incentives (2011)	Progress-Energy/Duke Energy report (No Date.)

Headquarters and Other Manufacturing
Information Technology
Life Sciences
Financial/Professional Services
Aviation and Aerospace
Defense/Homeland Security
Clean Tech
	Biomass and biofuels processing
	Energy equipment manufacturing
	Energy storage technologies
	Photovoltaic
	Environmental Consulting
	Biotechnology
	Pharmaceuticals
	Medical devices
	    Laboratory and surgical instruments
	    Diagnostic testing
	Modeling, simulation and training
	Optics and photonics
	Digital media
	Software
	Electronics
	Telecommunications
	Aviation
	    Aircraft and aircraft parts manufacturing
	    Maintenance repair and overhaul of aircrafts
	    Navigation instrument manufacturing
	    Flight simulator training
	Aerospace
	    Space vehicles and guided missile manufacturing
	    Satellite communications
	    Space technologies
	    Launch operations
	Equipment
	    Optical instruments
	    Navigation aids
	    Ammunition
	    Electronics
	Transportation
	    Military vehicles
	    Shipbuilding and repair
	Technology
	    Computer systems design
		Aviation and Aerospace
		Clean Energy
		Financial and Professional Services
		Homeland Security and Defense Industries
		Information Technology
		Life Sciences
		Manufacturing

Florida Strategic Plan for Economic Development (No Date)		
STEM Market-relevant technical skills Trade and transportation systems Telecommunications Future supply and quality of water Energy sources and systems		**Florida High Tech Corridor Council (2013)**
		Agritechnology Aviation and Aerospace Digital Media/Interactive Entertainment Financial Services Information Technology Life Sciences/Biotechnology Microelectronics/Nanotechnology Modeling, Simulation and Training Optics and Photonics Sustainable Energy
Department of Economic Opportunity: State of Florida Job Creation Plan (2011)		
Global competitiveness Military bases Sports, film, and entertainment production		**Florida High Tech Corridor Council 2010-2011 Annual Report**
Roadmap to Florida's Future – 2010-2015 Strategic Plan for Economic Development		
STEM Global Logistics Creative Industries Broadband Water Energy Innovation – R&D Transportation Trade and Tourism Global Commerce Nanotechnology Strategy Multidisciplinary Research		Aviation & Aerospace Information Technology Life Sciences and Medical Technologies Materials Modeling Simulation and Training Optics and Photonics Sustainable Energy
		Florida Center for Nursing: RN and LPN Supply and Demand Forecasts, 2010-2025
		Registered Nurses Licensed Nurse Practitioners

Closing the Talent Gap: What Florida Needs from its Talent Supply Chain; Florida Council of 100 in partnership with Florida Chamber of Commerce (2010)		Florida Hospital Association; Florida Hospitals' Workforce Challenges: 2012 Workforce Survey Highlights (2012)

Science and Technology
Research and Development
STEM
	Simulation and training
	Financial services
	   Banking
	   Insurance
	   Securities and investments
	Professional services
	   Corporate headquarters
	   Engineering
	   Legal
	   Accounting
	   Consulting
	Emerging technologies
	   Global logistics
	   Marine sciences
	   Materials Science
	   Nanotechnology
	Manufacturing
	   Food and Beverage
	   Automotive and marine
	   Plastics and rubber
	   Machine tooling
		Registered Nurse
		Stepdown & Telemetry Nurses
		ARPN
		Emergency Nurses
		Pediatric CCU Nurses
		Operating Room Nurses
		Medical/Surgical Nurses
		
		Occupational Therapists
		Speech Pathologists
		Physical Therapists
		Certified Surgical Technicians
		Medical Records Coder
		Medical Technologists
		Pharmacy Technician
		Cardiovascular Technician

Florida Department of Education – Critical Shortage Areas (2013)		
English for Speakers of Other Languages (ESOL) Middle and High School Science Foreign Languages Education English/Language Arts Middle and High School Reading Exceptional Education Middle and High School Math		
	State University System - Gap Analysis (2013)	
	Public Relations Specialists Computer Network Architects Computer System Analysts Computer Programmers Software Developers – Applications Software Developers – Systems Software Graphic Designers Industrial Engineers Kindergarten Teachers Middle School Teachers Medical and Clinical Laboratory Technologists Accountants and Auditors Financial Analysts Credit Counselors Training and Development Specialists Operations Research Analysts Insurance Underwriters	

National/ Federal Level Reports ad Data

Helios Education Foundation: Theory of Change—Postsecondary Education Success (2012)	US Department of Commerce, Economics and Statistics Administration (2011)	Council on Foreign Relations: US Education Reform and National Security (2012)
STEM	STEM - Computer and Mathematics - Engineering and Surveying - Physical and Life Science - STEM Management Occupations	Defense and Aerospace Industries Science and Engineering Cyber Security Information Security Foreign Languages STEM Management Computer Engineering
Federal Science, Technology, Engineering, and Mathematics (STEM) Education: 5 year Strategic Plan (2013)		
STEM Teachers		
	An Economy that Works: Job Creation and America's Future; McKinsey & Company (2011)	
Help Wanted: Projections of Jobs and Education Requirements through 2018; Georgetown Center on Education and the Workforce (2010)	Healthcare Business Services Leisure and Hospitality Construction Manufacturing Retail Nutritionists Welders Nurse's Aides Computer Specialists Engineers Management Scientists Computer Engineers	
Management occupations Business operations specialists Financial specialists Computer and mathematical science occupations Architects and technicians Engineers and technicians Life and physical scientists Social scientists and technicians Legal occupations Education occupations Healthcare practitioners and technical occupations		