2024 – 2025 STEM Cluster Sequence of Courses

Pathway: Engineering and Technology

State Program		1	2	3	4	CIP & SOC Suggestions
SC0026005 **Aerospace Program** 480 hours OCAS 9879	Pilot 480 hours	**8874 Aviation I** 120 hours Launching into Aviation Exploring Aviation & Aerospace	**8875 Aviation II** 120 hours Introduction to Flight Aircraft Systems Performance	**8876 Aviation III – Pilot 5010 Aeronautics** 120 hours The Flying Environment Flight Planning	**8705 STEM Capstone 8883 Aerospace Capstone** 120 hours Preflight Your Career Pilot Capstone	CIP: 36.0202 - Aircraft Pilot (Private) SOC: 99-9999 - No Match **Other Course: 8877 Aviation IV**
	Unmanned Aircraft Systems 480 hours	**8874 Aviation I** 120 hours Launching into Aviation Exploring Aviation & Aerospace	**8875 Aviation II** 120 hours Introduction to Flight Aircraft Systems & Performance	**8876 Aviation III – UAS 5010 Aeronautics** 120 hours The Flying Environment UAS Operations	**8705 STEM Capstone 8883 Aerospace Capstone** 120 hours A World of UAS UAS Capstone	CIP: 36.0207 - Remote Aircraft Pilot SOC: 99-9999 - No Match **Other Courses: 8877 Aviation IV**
SC0026006 **Aerospace Program - Advanced** 960 hours OCAS 9879 & 9880	General Aviation Maintenance 480 hours	**8886 Applied Sciences of Aircraft Maintenance** 120 hours	**8887 Basic Electricity** 120 hours	**8885 Aircraft Materials and Corrosion Control** 120 hours	**8883 Aerospace Capstone 8990 Work-Based Learning I – STEM 8721 STEM Internship** 120 hours	CIP:15.0801- Aeronautical/Aerospace Engineering Technology/Technician SOC:17-3021- Aerospace Engineering and Operations Technicians Or CIP: 47.0607-Airframe Mechanics and Aircraft Maintenance Tech/Technician SOC: 49-3011.00 –Aircraft Structure, Surfaces, Riggins, and Systems Assemblers

Pathway: Engineering and Technology

State Program		1	2	3	4	5	6	7-9	10-12
SC0026009 **Computer Science Program** 480 hours OCAS 9874	Computer Science 1440 hours	**2536 AP CS Principles** 120 hours	**2535 AP Computer Science A** 120 hours	**8160 Advanced Programming** 120 hours	**8871 Python** 120 hours	**8861 PLTW Cybersecurity 8256 Cybersecurity Basics** 120 hours	**8705 STEM Capstone 8716 PLTW Capstone** 120 hours	College Prep Math Year 1-3 360 hours	College Prep Lab Science Year 1-3 360 hours
	Computer Science 960 hours	**2536 AP CS Principles** 120 hours	**2535 AP Computer Science A** 120 hours	**8861 PLTW Cybersecurity 8256 Cybersecurity Basics 8160 Adv Programming** 120 hours	**8705 STEM Capstone 8716 PLTW Capstone** 120 hours	College Prep Math Year 1-2 240 hours	College Prep Lab Science Year 1-2 240 hours		
SC0026002 **Computer Science Program – Advanced** 960 - 1440 hours OCAS 9874 & 9875	Programming 960 hours	**8867 CS Discoveries** 120 hours	**2536 AP CS Principles** 120 hours	**2535 AP Computer Science A** 120 hours	**8160 Advanced Programming** 120 hours	**8871 Python** 120 hours	**8861 PLTW Cybersecurity 8256 Cybersecurity Basics** 120 hours	**8705 STEM Capstone 8716 PLTW Capstone 8990 Work-Based Learning I – STEM 8721 STEM Internship** 120 hours	**CIP and SOC Suggestions** CIP: 11.0201 Computer Programming/Programmer, General SOC: 15-1251.00 - Computer Programmers
	Intro to CS 480 hours	**8867 CS Discoveries** 120 hours	**2536 AP CS Principles** 120 hours	**2535 AP Computer Science A** 120 hours	**STEM Capstone** OCAS 8705 120 hours				

Pathway: Engineering and Technology

State Program		1	2	3	4	CIP and SOC Suggestions
SC0026004 **Robotics Engineering Program**	OCAS 9878 Robotics 480 hours	**8833 Robotics Engineering** 120 hours	**8160 Advanced Programming** 120 hours	**8866 Advanced Robotics Engineering** 120 hours	**8705 STEM Capstone 8721 STEM Internship** 120 hours	CIP: 15.0405 Robotics Technology/Technician SOC: 17-3024.01 – Robotics Technicians

Pathway: Engineering and Technology				CareerTech Approved College Prep Mathematics and Science Courses			
OCAS	Math	OCAS	Math	OCAS	Science	OCAS	Science
4830	Advanced Studies in Math I	4760	AP Statistics	5055	AP Chemistry	5211	Physics I
4831	Advanced Studies in Math II	4612	Calculus	5121	AP Environmental	5212	Physics II
4412	Algebra II	4520	Geometry	5213	AP Physics 2: Algebra-Based		
4413	Algebra III	4611	Pre-Calculus (60 or 120 hours)	5216	AP Physics C: Mechanics		
4615	AP Calculus AB	4614	AP Pre-Calculus	5217	AP Physics C: Electricity and Magnetism		
4616	AP Calculus BC	4740	Statistics & Probability	5051	Chemistry I		
		4750	Trigonometry (60 hours)				

Pathway: Engineering and Technology

State Program		1	2	3	4	5	6	7	8
SC0016001 **Pre-Engineering Program** 480 hours	Pre-Engineering - Adv 1440 hours	**8878 Engineering Essentials** 120 hours	**8709 PLTW IED** 120 hours	**8710 PLTW POE** 120 hours	**PLTW - Engineering Specialty Course** 120 hours	**PLTW - Engineering Specialty Course** 120 hours	**8716 PLTW Capstone** 120 hours	**College Prep Math** Year 1-3 360 hours	**College Prep Lab Science** Year 1-3 360 hours
	Pre-Engineering - Adv 960 hours	**8878 Engineering Essentials** 120 hours	**8709 PLTW IED** 120 hours	**8710 PLTW POE** 120 hours	**8716 PLTW Capstone** 120 hours	**College Prep Math** Year 1-2 240 hours	**College Prep Lab Science** Year 1-2 240 hours		**CIP and SOC Suggestions**
	Pre-Engineering - Adv 480 hours	**8878 Engineering Essentials** 120 hours	**8709 PLTW IED** 120 hours	**8710 PLTW POE** 120 hours	**8716 PLTW Capstone** 120 hours				CIP: 14.0101 - Engineering, General SOC: 17-2199.00 - Engineers, All Others Or CIP: 14.0102 Pre-Engineering SOC: 99-9999 No Match
SC0026010 **Pre-Engineering Program – Advanced** 960 – 1440 hours OCAS 9862 & 9871	PLTW Engineering Specialty Courses	**8711 Digital Electronics** 120 hours		**8712 Computer Integrated Manufacturing** 120 hours		**8713 Civil Engineering & Architecture** 120 hours		**8854 Environmental Sustainability** 120 hours	**8715 Aerospace Engineering** 120 hours
	SREB Integrated Production Technology 480 hours	**8862 Advanced Technology for Design and Production** 120 hours		**8863 Systems of Advanced Technology** hours 120		**8864 Mechatronic Systems for Advanced Production** 120 hours		**8865 Design for the Production of Advanced Products** 120 hours	CIP: 15.0001 - Applied Engineering Technologies/Technicians SOC: 17-3024 Electro-Mechanical and Mechatronics Technologists and Technicians
	SREB Innovations in Science & Technology 480 hours	**8855 Nature of Science and Technology** 120 hours		**8856 Core Applications of Science and Technology** 120 hours		**8857 Impacts of Science & Technology** 120 hours		**8858 Creativity & Innovations** 120 hours	CIP: 14.0103 - Applied Engineering SOC: 17-2199 Engineers, All Other
	Applied Engineer 480 hours	**8879 Mechanical Design Engineering** 120 hours		**8882 Advanced Mechanical Design Engineering** 120 hours		**8826 Advanced Design Applications** 120 hours		**8705 STEM Capstone 8721 STEM Internship 8990 Work-Based Learning I - STEM** 120 hours	CIP: 14.0103 - Applied Engineering SOC: 17-2199 Engineers, All Other

OCAS	Math	OCAS	Math	OCAS	Science	OCAS	Science
4830	Advanced Studies in Math I	4760	AP Statistics	5333	Anatomy & Physiology (120 hrs.)	5336	Microbiology
4831	Advanced Studies in Math II	4612	Calculus	5035	AP Biology		
4412	Algebra II	4520	Geometry	5055	AP Chemistry		
4413	Algebra III	4611	Pre-Calculus (60 or 120 hours)	5121	AP Environmental		
4615	AP Calculus AB	4614	AP Pre-Calculus	5051	Chemistry I		
4616	AP Calculus BC	4740	Statistics & Probability	5333	Physiology (60) or Anatomy (60)		
		4750	Trigonometry (60 hours)				

State Program		1	2	3	4	5	6	7
SC0026000 **Biomedical Science and Medicine Program** 480 hours OCAS 9852	Biomedical Science 1440 hours	8706 PLTW Principles of Bio Science 120 hours	8707 PLTW Human Body Systems 120 hours	8708 PLTW Medical Interventions 120 hours	8719 PLTW Biomedical Innovation 120 hours	8716 PLTW Capstone	College Prep Math Years 1-3 360 hours	College Prep Lab Science Year 1-3 360 hours
	Biomedical Science 960 hours	8706 PLTW Principles of Bio Science 120 hours	8707 PLTW Human Body Systems 120 hours	8708 PLTW Medical Interventions 120 hours	8719 PLTW Biomedical Innovation 120 hours	8716 PLTW Capstone	College Prep Math Years 1- 2 240 hours	College Prep Lab Science Year 1-2 240 hours
SC0026007 **Biomedical Science and Medicine Program - Advanced** 960 - 1440 hours OCAS 9852 & 9870	Biomedical Science 480 hours	8706 PLTW Principles of Bio Science 120 hours	8707 PLTW Human Body Systems 120 hours	8708 PLTW Medical Interventions 120 hours	8719 PLTW Biomedical Innovation 120 hours	**CIP and SOC Suggestions** CIP: 26.0102 - Biomedical Sciences, General SOC: 19-1042 Medical Scientists, Except Epidemiologist SOC: 19-4021 Biological Technicians Or CIP: 15.0401 Biomedical Technology/Technician SOC: 17-3029.00 - Engineer Tech, Except Drafters, All Other Or CIP: 26.9999 - Biological and Biomedical Sciences, Other SOC: 19-1029 - Biological Scientists, All Other		

Pathway: Science and Mathematics

State Program		1	2	3	4	5	6	7	8
SC0026008 **Biotechnology Program** 480 hours OCAS 9872	Biotechnology 960 hours	8701 Survey of Biotech 120 hours	8702 Biotech I 120 hours	8703 Biotech II 120 hours	8704 Adv Biotech I 120 hours	8717 Advanced Biotech II 120 hours	5035 AP Biology 5055 AP Chemistry 120 hours	5121 AP Environmental Science 120 hours	8705 STEM Capstone 120 hours
SC0026001 **Biotechnology Program - Advanced** 960 OCAS 9872 & 9873	Biotechnology 480 hours	8701 Survey of Biotech 120 hours	8702 Biotech I 120 hours	8703 Biotech II 120 hours	8705 STEM Capstone 120 hours	**CIP and SOC Suggestions** CIP: 41.0101 Biology/Biotechnology Technology/Technician SOC: 19-4021 Biological Technicians			