Application for T-STEM Designation - New/Provisional

2016-2017

Contents

Texas Education Agency
Application for T-STEM Designation
Statutory Authority: Texas Education Code §39.235

Overview of Designation

In order to operate as a Texas Education Agency (TEA)-approved Texas - Science, Technology, Engineering, and Math (T-STEM) Academy, a district must seek and receive T-STEM designation from TEA. In order to receive the T-STEM designation, a school must exhibit key traits from the T-STEM Academy Design Blueprint included in this application. The intent of this designation is to ensure that districts operating T-STEM Academies: integrate all the key characteristics of well-researched and well-designed STEM education while serving students who may not have otherwise considered the fields of science, technology, engineering, and math.

Benefits of Designation

Recognition as an Approved T-STEM Academy:
Schools designated by TEA as state-approved T-STEM Academies will receive various forms of media recognition including, but not limited to: identification on TEA's website as a state-approved T-STEM Academy and recognition in press releases.

Participation in T-STEM Convenings:
Special events hosted by TEA for T-STEM Academy administrators and principals to provide input on policies and procedures that impact T-STEM Academies.

Membership in the T-STEM Network:
Frequently opportunities are provided for principals, teachers, and students in designated T-STEM Academies through the T-STEM network to share best practices through conferences and technical assistance sessions. Membership in the T-STEM Network allows T-STEM Academies to access online exemplars, professional development, and webinars.

Access to Professional Development and Technical Assistance:
Designated T-STEM academies will have access to high-quality technical assistance which includes advice and information from a Leadership Coach who has successfully facilitated the design and implementation of the majority of T-STEM Academies operating in Texas.

Strength of T-STEM Model:

- Through the designation process, TEA will recognize those T-STEM Academies that effectively incorporate T-STEM Design Blueprint elements. The designation process will enable districts and their partners to engage in the research and planning necessary to ensure that their T-STEM Academies are set up in the most effective way possible.
- The T-STEM Blueprint provides a framework for T-STEM Academies to access college and career opportunities that support post secondary success.

Questions about Completing the Application

Who can fill out a T-STEM Academy designation application?

Any district or charter school campus may apply to be designated as a T-STEM Academy. Potential applicants are encouraged to carefully review the T-STEM Design Blueprint to determine readiness for implementation of the model.

Will have to fill out the same application each year?

No. New designation applicants and those T-STEM Academies that are provisionally designated will complete the comprehensive form. T-STEM Academies that are fully designated must complete the abbreviated T-STEM designation application yearly. The abbreviated renewal application will require a designated T-STEM Academy to provide updates regarding changes in the design and operation of the Academy. However, the primary focus of the annual renewal will be to gather evidence on the Academy's progress along the T-STEM Academy Design Blueprint continuum.

Will this application be required for T-STEM Academy grantees in the future?

Yes. In future funding cycles, completion of this application will be a program requirement for T-STEM Academy grant recipients.

Who can I contact for help filling out this application?

- **New applicants** may contact the T-STEM Program Manager at tstem@tea.state.tx.us.
- **2016-2017 designated T-STEM Academies** may contact their current T-STEM coach.

Application Information

General Information:

- A district or charter must submit a separate application with the required attachments on behalf of each proposed T-STEM Academy.
- The application must be submitted via the online system by **5:00pm, March 4th, 2016**
- A campus must be designated prior to the beginning of the school year in order to operate as a T-STEM Academy for that year. T-STEM Academy approval is valid for a maximum of one year. T-STEM Academy designated must be applied for each year via the TEA T-STEM designation process.

Timeline & Process:

- March 4th, 2016: Applications are due to TEA in order to open a campus as a designated T-STEM Academy during the 2016-2017 school year.
- June 2016: Districts submitting applications by March 4th, 2016 will be notified of the selection or non-selection of the campus as a designated T-STEM Academy on or about June 2016. Applications submitted prior to the March 4th, 2016 deadline may be approved prior to June 2016.
- The district will receive a notification letter of selection or non-selection for each campus it proposes to operate as a T-STEM Academy.

Required Attachments:

- **Official signature:** Official signature of a district or charter official authorized by the local board to bind the applicant organization in a legally binding contractual agreement.

Required Supporting Documents:

- The Academy must have current versions of the following documents on file.
- Each applicant is required to provide an assurance that each of the supporting documents is current for the 2016-2017 school year, signed by all parties, and provides detailed information regarding the specific assurance.
  - **Dual Credit MOU**
  - **Professional Development Plan**
  - **Business/Industry Agreement**
  - **2016-2017 Master Schedule**

Questions:

T-STEM Program Manager
tstem@tea.state.tx.us

Required T-STEM Academy Design Program Elements

The following design elements are the minimum requried components that must be demonstrated through this application in order to be designated as a T-STEM Academy:

- The T-STEM Academy must serve grades 9 through 12 and may serve grades 6, 7, and 8.
- A campus must be designated prior to the beginning of the school year in order to operate as a T-STEM Academy for that year. T-STEM Academy approval is valid for a maximum of one year. T-STEM Academy designated must be applied for each year via the TEA T-STEM designation process.

I. Mission Driven Leadership:

- The Academy's mission statement and planned advisory board must reflect the mission and vision of the T STEM Initiative.
- The Academy must use program review and formative evaluation to achieve its mission and goals.
- The Academy must promote leadership development and collaboration within the Academy and T-STEM Network.
- For Academies that include 6th, 7th, and 8th grades, leadership teams from the middle school and high school must collaborate on a regular basis.

II. Academy Culture and Design:

- The T-STEM culture must foster positive student identities through meaningful adult and peer relationships.
- All students graduating from the Academy must be prepared for postsecondary coursework and careers in the STEM fields through the integration of the Governor's economic workforce clusters and AchieveTexas STEM cluster into the curriculum.
- The Academy must support all students to graduate high school with four years of math, four years of science, four years of STEM electives, an Endorsement (with a primary focus on STEM endorsements), and a Performance Acknowledgement for a Distinguished Level of Achievement.

III. Student Access, Success,and Persistence:

- The Academy must have a clear plan for student support and success to achieve persistence rates above 70%.
- The Academy must instill the expectation that students expand their participation and leadership in STEM activities outside the classroom and provide the opportunity to do so.

IV. Teacher Selection,Development, and Retention:

- The Academy faculty must possess extensive subject knowledge and integrate project based learning (PBL) and STEM pedagogy into the classroom.
- The Academy must adopt and implement a plan for sustained professional development.

Required T-STEM Academy Design Program Elements cont.

V. Curriculum.Instruction.and Assessment:

- The Academy must align curriculum, instruction, and assessment to provide students with rigorous STEM focused instruction.
- The Academy must deliver Innovative STEM programs that are well-defined, embed critical thinking and problem solving, foster innovation and invention, and are aligned to state and/or national standards, and industry expectations.
- The Academy must integrate science, technology, engineering, and mathematics throughout the curriculum.
- The Academy must continually monitor student progress through assessments and data collection.
- The Academy must promote STEM literacy and prepare students with 21st Century skills.
- The Academy must support three years of STEM electives at middle school and four years of STEM electives at high school.

VI .Strategic Alliances:

- The Academy must promote family involvement in student success.
- The Academy must integrate business partnerships into the curriculum and student learning experience.
- The Academy must partner with IHEs and college/career-preparation entities to ensure that students graduate with college credits and prepared for postsecondary success.

VII. Sustainability and Advancement:

- The Academy must have a plan for continuous improvement and growth.
- The Academy must adopt and implement a plan for sustained professional development.

Scoring of the Application

- Each applicant will be reviewed by T-STEM subject-matter experts from across the state.
- New applicants will be reviewed based on the proposed plan and a follow up with the applicant, if necessary.
- Each applicant will receive a notification letter from TEA indicating which designation category it has been assigned: Designated, Provisionally Designated, or Denied.
- The T-STEM Academy Design Blueprint has been consolidated in the application to highlight priorities for the planning period of designation. Applicants should focus on the benchmarks presented in answering the questions.

PART 1: CONTACTS

1.1 T-STEM Academy

T-STEM Academy Name	South Early College High School Advance Technology Institute/Environmental x4(SECATI/E4)
County District Campus Number	101912486
Mailing Address - Line 1	1990 Airport Blvd
Mailing Address - Line 2	
Mailing City	Houston
Mailing Zip Code	77051

1.2 School District

School District name	Houston Independent School District
Mailing Address - Line 1	4400 West 18th Street
Mailing Address - Line 2	
Mailing City	Houston
Mailing Zip Code	77092

1.3 Education Service Center Region

04

1.4 Person Completing this Application

First Name	Efrem
Initial	
Last Name	Pierce
Title	STEM Coordinator
Phone	(832) 236-9537
Email	epierce@houstonisd.org

1.5 Academy Principal/Director

First Name	Steven
Initial	
Last Name	Gourrier
Title	Principal
Phone	(713) 732-3623
Email	SGOURRIE@houstonisd.org

1.6 Superintendent

First Name	Kenneth
Initial	
Last Name	Huewitt
Phone	(713) 556-6300
Email	hisdsuperintendent@houstonisd.org

1.7 T-STEM Academy Partner Information

IHE Partner	Houston Community College
STEM Business Community Industry Partner	Mobile Encryption Technology

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1.8 Authorized School District or Charter Official

First Name	Kenneth
Initial	
Last Name	Huewitt
Title	Interim Superintendent of Schools
Phone	(713) 556-6300
Email	HISDSuperintendent@houstonisd.org
Signature	(Attached)

PART 2: BACKGROUND

2.0 Is your campus currently designated as an Early College High School (ECHS) through the TEA ECHS designation process? Yes

2.1 First year of Academy Operation 2012

2.2 Years in Operation 3

2.3 Academy Model:
What is the design of the T-STEM Academy requesting designation? Other:

2.4 Target Population

Grades of students to be served	6th	7th	8th	9th	10th	11th	12th	Total Enrollment
2016-2017 projected enrollment	60	50	60	135	120	65	50	540
2015-2016 enrollment (if designated in the 2015-2016 school year)	46	50	55	72	64	24	18	329

PART 3: BENCHMARKS

T-STEM Blueprint Instructions

The T-STEM Academy Design Blueprint consists of seven benchmarks that drive the success of an Academy. Each benchmark highlights program requirements and offers a rubric score of developing, implementing, mature, or role model. T-STEM Academies use this tool to measure growth and progress along the continuum.

All seven benchmarks are included in the application. However, applicants may notice the program requirements are not numbered sequentially. This is because not all program requirements are included in the Designation Application. Applicants are not expected to meet or even consider all program requirements at this stage in the process. Instead, those program requirements that form the building blocks of a successful designated Academy are included in the Designation Application. Focused consideration of those particular program requirements will mean a successful applicant will have a strong foundation as a designated T-STEM Academy. The technical assistance that comes as a result of designation will allow the designated Academy to implement the Blueprint Benchmarks' full program requirements over time.

Benchmarks 1-4, 6 & 7
Applicants should first review the program requirements for each benchmark presented in the body of the application. The questions that follow pertain to those specific requirements (i.e. Benchmark 1 questions pertain to Benchmark 1 program requirements). Applicant responses should reflect a close consideration of the highlighted rubric areas in the context of what the campus has in place currently and could feasibly implement during the first designated year. Applications will be scored on the response's evident understanding of the continuum of growth along the rubric, evidence of existing programs, and feasible plan to move forward for each requirement.

Benchmark 5: Curriculum, Instruction, and Assessment
Applicants should review the program requirements presented in each section and rate the campus's existing system in the rubric's check boxes. Applicants are then asked to justify the ratings with evidence, reflection, and a plan to move forward, bearing in mind that with designation comes the tools and assistance necessary to progress along the continuum. Successful applicants will reflect an understanding of Benchmark 5 and are not necessarily expected to have all elements in place before designation.

Benchmark 1: Mission-Driven Leadership

Program Requirements

1.2.C.	Develops and demonstrates support from an advisory board (AB) consisting of representatives from the Academy, school board, district, community, higher education, and STEM businesses to support and guide facility requirements, resource acquisition, curriculum development, internship, externships, and student/community outreach to ensure a successful 6-20 STEM academic and career pipeline.
1.3.A.	Integrates and assesses the level of mission-driven and data-driven decision making evident in the daily work of the Academy.
1.4.A.	For 6-12 campuses, middle school and high school leadership teams regularly collaborate to advance 6-12 alignment and student retention in STEM.

Key Elements for Success

- Job descriptions and roles for design team, leadership team, and advisory board
- Mission is posted and can be articulated by teachers, staff, students, key stakeholders, etc.
- MOUs with T-STEM Centers

	Developing	Implementing	Mature	Role Model
1.2.C.	Advisory Board (AB) established.	AB positions and subcommittees are identified.	AB develops innovative and creative approaches to support Academy mission and vision.	AB addresses major shifts in STEM, educational standards, industry expectations, and analyzes SWOT of Academy, resulting in measurable action items.
1.3.A.	Little or no evidence of data-driven and mission-driven decision making.	Data is used to design student interventions, Annual Action Plan (AAP), and to inform teaching and learning aligned to the mission.	Teachers work interdependently as teams to review data across content areas, develop targeted interventions, and develop common formative assessments.	The Academy's continual analysis of results for improvement is critical to the school's system of interventions and culture of celebration.
1.4.A.	Academy leadership occasionally collaborates with each other (6th - 12th), with T-STEM centers, and T-STEM Coaches.	Academy leaders and staff collaborate with each other (6th - 12th), and with T-STEM Centers and Coaches to integrate STEM teacher preparation, teaching, and learning. *And meets criteria from Developing*	Academy plans with regional T-STEM Center, vertical alignment teams 6th - 12th (at least quarterly), and meets with their T-STEM Coach, virtually or Face-to-Face (at least monthly). *And meets criteria from Developing and Implementing*	Academy dialogues on a regular, ongoing basis in vertical alignment teams (6th - 12th), with T-STEM Centers and Coaches, and utilizes available T-STEM resources to improve student achievement and teacher preparation. *And meets criteria from Developing, Implementing, and Mature*

Benchmark 1: Mission-Driven Leadership

- Program Requirement 1.3.A. addresses the use of data to drive design, decision making, and program review in a T-STEM Academy.
- Designated campuses will be expected to meet or exceed “Implementing” on the rubric above (Data is used to design student interventions, Annual Action Plan, and to inform teaching and learning aligned to the mission) by the end of the first designated year.

Describe below how the campus will meet or exceed this expectation.

The STEM, Academy South Early College Advanced Technology Institute (SECATI) high school with the Earth, Energy, and Environmental Engineering (E4) middle school, demonstrates mature status with regard to sustaining the existing culture of using data to drive the development of goals and objectives for school transformation and teacher professional learning. Specifically, data from campus-based, district-level, and state standardized assessments drive our decisions around teacher and leadership team professional learning; development of student interventions; planning, implementation, assessment, and modifications to the Annual Campus Improvement Action Plan; as well as instructional support that is requested at the district level. Progress towards the Annual Campus Improvement Action Plan is reviewed every six weeks by the school leadership team and district level support administrative staff. Specifically, the leadership team completes a targeted gap analysis of student performance goals versus student benchmark data for each content area. The team determines whether students are making progress towards mastery, possible reasons why students are not performing when mastery is not achieved, as well as changes that must be made to the action plan in order to support students who are unsuccessful. Based on campus goals, current educational research on best practices, and data gathered by the TSTEM instructional coach, other STEM instructional coaches are used to facilitate professional learning for teachers and program implementation for student academic growth and engagement.

SECATI and the E4 campuses are organized into Content Professional Learning/Data Communities. The STEM instructional coach facilitates training with campus Math, Science and Technology teachers a minimum of three days a week during Content Professional Learning/Data Community planning time to mentor and guide instructional practices, complete content studies of the hardest to teach objectives, keep teachers abreast of current research, and engage them in the most effective components of job-embedded professional development. Campus-based formative assessments are administered weekly. District-based assessments are administered once a month. Data analyses calendars that align with the HISD curriculum scope and sequence and scope for core content areas are developed. Data is analyzed by teachers in the content learning/data teams using the Curriculum Planning for Mastery Learning and Data Into Action Framework that was developed following a book study by the campus leadership team of E4 will be continued by SECATI in the upcoming 2016-2017 school year. Decisions regarding interventions for students are made by teachers in response to student's low performance on identified Power Standards with the assistance of teacher development specialists and our STEM instructional coach.

Campus based leadership team meetings are held twice monthly to discuss benchmark data progress; curriculum, instruction, and assessment support to be provided by the district, and effectiveness of student interventions in place. The leadership team meets weekly with the Instructional Practice Coach to evaluate the coach's impact on student achievement and teacher professional growth in response to training provided. The SECATI and E4 STEM Academy principals meets monthly or via conference call with the Educate Texas STEM coach.

- Program Requirement 1.2.C. details the requirements for an Academy's advisory board (AB).

List the planned AB members and their job title (example: John Smith, School Board Member; Jan Smith, STEM Business Leader, etc.). Detail how this board will support the Academy work.

The SECATI and E4 STEM Academy Board consists of a diverse group of professionals who are committed to the advancement of the mission and vision of the program. The Advisory Board serves to support the integrity and fidelity of the T-STEM blueprint and address all issues in order to sustain a successful PreK-20 STEM academic pipeline.

Specifically, the board provides recommendations and resources for program growth, particularly, in the areas of: community and public relations, marketing, curriculum review and updating, identifying community and campus resources, STEM higher education and business partnerships, student recruitment, program review, staff development, and teacher recruitment and retention. The Advisory Board meets monthly to discuss strategies, develop action plans, and set timelines for completing tasks that will help to advance the STEM Academy to role model status. As the academy approaches the role model status the Advisory Board will meet quarterly with sub-committees meeting as needed.

The SECATI and E4 STEM Academy Advisory Board consists of the following stakeholders:

1) Dr. Jyron Walls, Community Business Partner, Sunnyside Dental supports with community resource activities including financial donations, free SAT preparatory tutorials for students and the launch of the CityScape Garden Project on the Attucks Middle School campus.

2) Danielle Beckford, Executive Director, The Urban STEM Initiative who supports SECATI and E4 STEM Academy with marketing and public relations activities. Also the organization has the capacity to provide STEM instructional coaches and student STEM programs.

3) Brian Dorton, Director of Iron Academy, supports the high school component with placing students after graduation at STEM related fields.

4) Ms. Shantell Williams, RN, Texas Women's Hospital (SECHS Alumni). Responsible for providing mentoring and job shadowing for students who are interested in the medical field.

5) Dr. Ismail Adesanya, MD, Memorial Hermann Hospital,). Responsible for providing mentoring and job shadowing for students who are interested in the medical field.

6) Dr. Demetris. Green, MD, CEO Sirte Med, Community Business Partner, Sunnyside Dental supports with community resource activities including financial donations.

Program Requirement 1.1.A: Provide the Academy mission statement below.

The SECATI-E4 Academy develops learning capacity every day. We prepare students for high school, college and career success through an accountable school community.

SECATI-E4 Academy seeks to ensure that every student becomes confident and competent with their innate talents, help parents and community navigate the school system, improve the skills needed for success in high school and college, provide exposure and access to the latest technology, advanced mathematics, science, and engineering content and careers and establish values that will allow students to act with thoughtfulness and humanity. To this end, we have prepared a small learning community network that is caring, competent, committed, and culturally responsive to our students well-being. And the belief that one must give back through service learning.

- Program Requirement 1.4.A details the requirements for 6th-12th campuses to collaborate on a regular basis to advance 6th-12th alignment and student retention in STEM.

Describe below how the campus will meet or exceed this expectation. If Academy is 9th-12th write, "Not Applicable".

A Critical Friends Group, called SECATI-E4 STEM Academy Critical Development Collaborative (CDC), has been established with the STEM campuses where teachers and leaders from both campuses can collaborate to establish a set of instructional practices that include Cornell note-taking, Costa questioning techniques, use of technology for rigorous instruction through blended learning, and project-based learning. The collaborative allows 1) common feeder pattern STEM vocabulary for parents and students, 2) participate in professional development activities available through the T-STEM network, SRT-STEM center and MSAP contractors provided by SECATI, 3) post monthly on the SECATI-E4 STEM Academy Share Point Website, 4) analyze data, discuss intervention best practices, 5) sustain Character Education component for highly effective teens, decision making and service leaning experiences for the high school students. 6) Instructors participate in summer professional learning on STEM, and 7) both teachers and leaders, conduct Learning Walks (peer observations) to determine ways to strengthen both campus programs and ensure teacher development. Planning time has been embedded into schedule during early dismissal days once a month on the E4 campus and every Friday on the SECATI campus, and Saturday Institutes held Saturdays bi-monthly.

Leadership and instructional teams from both campuses engage in Coaching to Rigor Leadership Collaboration sessions weekly through the 2016-2017 school year. Discussed are common STEM practices, plan field lessons, study professional literature for best ways to cultivate a positive STEM culture, and strategies we will use to coach teachers. During the 2016-2017 school year the CDC will focus on teacher collaboration and technological instructional strategies. The leadership team members will model best practices, demonstrate lessons that will be implemented in teacher classrooms, provide protocol-driven peer observation/feedback to teachers, teacher reflection and goal-setting for long term professional growth supported by emerging technologies, discussion of professional articles and book studies for best practices, as well as virtual collaboration with peers and experts. Other learning will be focused on common practices to ensure a seamless STEM culture-blended learning, student motivation and character development, workshops, science, math, and social studies collaborative workshops for all teachers teaching high school credit courses, and vertical alignment seminars for best practices to address trends in student learning gaps for the feeder pattern.

STEM Bridge Camps will be held collaboratively to support fifth and eighth grade transition. The focus is on bridging 100% of all eighth graders to high school with algebra, biology, principles of technology, world geography, Spanish, and journalism high school credits. Students who master algebra I in seventh grade will transition with geometry credit. The Texas Success Initiative assessment is a priority for the middle and high school feeder collaborative. Summer camp pre-test and post-test will simulate the TSI assessment. The actual assessment will be administered the fall of student's ninth grade year for data tracking and intervention purposes as students must master this exam by the end of their ninth grade year to begin college credit courses their tenth grade year.

Benchmark 2: T-STEM Academy Culture and Design
Program Requirement: 2.1 Personalization

2.1.A Addresses in AAP and strategic plan the details for remaining small, allowing for personalization and maintaining collaborative learning communities of students.
2.1.B Plans and implements a non-graded student advisory program that is regularly scheduled, noted in the master calendar/schedule, and focuses on personalizing the student experience, (builds relationships with students and parents, develops character, and fosters global literacy).
2.1.C Develops a process for hearing and responding to student voice.

Key Elements for Success	Example Artifacts
• Student IGPs w/ CCRS, Endorsements, and Performance Acknowledgement plans • Master schedule for advisory • Student enrollment	• Opportunities for orientation sharing and team building activities both on- and off-site • Advisory class curriculum • Student goal setting and reflection logs • Teacher mentors assigned to students • Pre- and post-assessments of advisory class goal • Students sit on advisory board and/or have voice in student work products, clubs, competitions, governance, and course offerings • School wide activities to build/share culture • Student ambassadors serving as classroom greeters and/or guide tour groups • Teacher/student ratios, actual class sizes • Surveys documenting students' elective requests

Developing	Implementing	Mature	Role Model
1. District and Academy resources are allocated to ensure teaching staff and facilities remain small.	1. Annual Action Plan and Academy handbook address plan for maintaining personalized, small, learning communities.	1. Students are regularly afforded multiple opportunities to build relationships with staff and peers such as working in academic and/or competitive teams horizontally and vertically.	1. Protocols are developed to ensure students have a clear and documented voice in the Academy (student council, advisory committee to the director, suggestion box, etc.
2. Student advisory is regularly scheduled and focuses on relationships, building school capital, developing and fostering global literacy.	2. Advisory class has written curriculum with goals, expectations, scope, sequence, and pacing guides.	2. Teachers work in teams to develop systemic advisory programs with horizontally and vertically aligned student outcomes.	2. Annual resources are allocated to develop, revise, and sustain advisory program with input from students, teachers, parents, and external partners.
	And meets criteria from Developing	*And meets criteria from Developing and Implementing*	*And meets criteria from Developing, Implementing, and Mature*

Benchmark 2: T-STEM Academy Culture and Design
Program Requirement: 2.1 Personalization

2.1.D Arranges for a flexible school day with blocks of time that support student learning (tutorials, collaboration, meetings).
2.1.E Celebrates high quality student work through student exhibits on-site, web-based, and/or in state and national forums.
2.1.F Provides every 6th – 12th student with an individualized STEM-focused high school graduation plan that addresses: four years of math and science; an Endorsement in STEM, Business and Industry, Public Service, or Arts and Humanities; identifies target areas for Performance Acknowledgements; and is at least annually reviewed and revised with the counselor, student, and family.

Example Artifacts

- Honor roll, grade level/school-wide celebrations
- Classroom and building displays
- Number of students participating in student exhibits
- Agendas/signatures for IGP meetings with students and family
- IGP, record folder/portfolio, 6th -16th course plan
- Master schedule, tutoring schedule
- Minutes/action items from site based committees, etc.
- Website showcasing student work
- Documentation of at least annual 6th – 12th IGP meetings with parents and students

Developing	Implementing	Mature	Role Model
1. Academy develops a flexible schedule that supports student success.	1. Schedule is developed with input from teachers, counselors, content coaches, extracurricular and internship/capstone requirements.	1. Teachers work in teams to adjust daily schedule to facilitate interdisciplinary PBL.	1. Schedule is adjusted to meet student needs according to data, student, teacher, and parent voice; intervention and extension plans.
2. Academy regularly schedules for students to share their knowledge and work products.	2. Students participate in panel presentations, debates, academic fairs, webinars, online challenges, competitions, design challenges, etc.	2. Resources are allocated to provide students with opportunities to participate in state and national forums, conferences, and competitions (financial, facilities, staffing, transportation, etc.).	2. Academy establishes protocols with input from key stakeholders to gauge the effectiveness of student participation in competitions, challenges, etc. towards promoting college and career readiness as well as Academy goals.
3. Academy develops IGP for each 6th – 12th student that addresses STEM pathways, THECB College and Career Readiness Standards.	3. Student, counselor, and family regularly review and revise the IGP to address student goals for courses, grades, Endorsements, Performance Acknowledgements, college entrance exams, PSAT/ACT/SAT, career aspirations, etc.	3. Annually reviews and revises IGP according to previously established protocols and timelines.	3. Mentors are assigned to students to develop intervention contracts to address deficiencies or acceleration opportunities in IGP.
	And meets criteria from Developing	*And meets criteria from Developing and Implementing*	*And meets criteria from Developing, Implementing, and Mature*

Benchmark 2: T-STEM Academy Culture and Design
Program Requirement: 2.2 Culture

2.2.A Collaborates with stakeholders to develop a new handbook or modify the existing handbook with clear procedures, policies, and consequences that support the development of a strong T-STEM culture.

2.2.B Involves all stakeholders in developing a culture of respect, responsibility, trust, and meaningful adult and peer relationships throughout the Academy in order to foster positive student identities.

2.2.C Creates a professional learning community environment of collaboration, teaming, and high expectations among administrators, teachers, and stakeholders, with a focus on and a commitment to the learning of each student.

Example Artifacts

- Handbook, attendance/discipline goals/data
- Customs and celebrations, modeling lessons for respect, responsibility, trust
- Student, teacher, parent surveys address culture
- Sharing of ideas and strategies and joint problem-solving are widespread.
- School developed common vocabulary for evidence of "good teaching"
- PLC protocols and expectations (meeting times, book studies, goals, results based on interventions, reflections on results – new actions, etc.)
- Collaborative planning of learning and teaching activities
- Widespread teamwork involving teachers and support staff
- Peer walkthroughs, lesson evaluations, and critical friends reflections

Developing	Implementing	Mature	Role Model
1. Handbook is developed to address student, parent expectations and a culture of respect, responsibility and trust.	1. Handbook addresses key tenets of cultural beliefs of Academy (student ability and achievement, efficacy and effort, power, distributed leadership, cultural sensitivity, proactive and reflective practice, etc.).	1. Handbook is developed with input from key stakeholders with clear policies, procedures, and consequences (attendance, discipline, student contracts, teacher extended days, etc.).	1. There is a high degree of commitment to school-wide professional values and a strong sense of cohesion and consistency of approach, with protocols to analyze, build, and assess effectiveness of culture.
2. Professional Learning Community (PLC) is developed which supports staff devoting effort, energy, time, and resources into incorporating valuable new strategies into their practice.	2. An inquiry-based continuous improvement orientation to practice is pervasive, with data informing practice and learning widely shared.	2. Staff regularly and consistently plans together, collaborates and shares ideas through meetings, website resources, teaming, team teaching etc., and garners input from external experts.	2. A desire to do the best for *all* students pervades the school as evidenced by protocols for regular and deep school-wide dialogue about good teaching, assessment, learning, projects, and successes of individual students.
	And meets criteria from Developing	*And meets criteria from Developing and Implementing*	*And meets criteria from Developing, Implementing, and Mature*

Benchmark 2: T-STEM Academy Culture and Design

- Applicants should consider the program requirements listed above as they pertain to a student's individualized learning experience.

Describe the campus's efforts to support students to reach this goal. This description should include plans for: an advisory period, a positive school culture, enhanced relationships with parents, and responding to student voice.

SECATI and E4 STEM Academy have joined to form a feeder pattern academic program, the SECATI and E4 T-STEM Academy. As a feeder middle and high school team, we collaborated to provide our students STEM field lessons, determine STEM best practices to foster a STEM culture, and combined recruitment efforts for over three years. We have made significant collaborative efforts related to encouraging student leadership, tracking participation, and intervening when there was insufficient progress. The Academies have established Student Advisory Councils on both campuses. Students on each grade level are elected to the STEM Student Advisory Council and invited to become members of our National Association for Student Council and National Junior Honor Society charters based on academic performance. Students are allowed to make suggestions regarding academic and social topics. Students at the middle school level engage in a Teen Leadership curriculum utilizing the Sean Covey, Leader in Me, framework during daily advisory period. The Habits of Heart and Mind curriculum is used during the advisory period for the high school students. Teacher and student learning communities are built with the use of the Critical Friends Group framework. Student advisory's at SECATI meet daily, to build relationships with peers, get assistance completing personal high school graduation growth plans, and their Associate's degree at Houston Community College (HCC). Each student is enrolled in a weekly service learning project to develop leadership skills and internship opportunities

Grade-level teacher teams collaborate to determine age-appropriate projects for students that support character building, academic success, and college readiness using literature and book studies around important decision making, life strategies, and habits of highly effective teens. The Academies have also implemented student focus groups held each six weeks to get students perceptions about the culture of the school, courses offered, desired electives, adult-student relationships and support mechanisms, and suggestions for improving the STEM culture. These focus groups are student led and support our student leadership development and provides opportunities for student voice in the academy.

STEM Student Assistants (TAs) assist teachers with activities that support their peers during tutorials, assist the science teachers with laboratory preparation, collaborate with the journalism teacher to publish the school newsletter on both campuses, submit articles for the community newspaper, and maintain the campus website. This initiative has been very successful with our high school (SECATI) student leaders supporting our middle school students each week in the classroom and participating in all STEM field experiences to continue to build the collaborative STEM culture. SECATI-E4 Academy determined that all students would take an Advancement Via Individual Determination (AVID) class beginning the fall of 2015 with sixth grade and phasing in a grade level each year. Our framework for student learning involves the recruitment of students who fall in the middle with regard to academic achievement but have the sincere interest in STEM; the implementation of a course to support leadership, organizational skills, college preparation, development of student portfolios, and college entrance exam preparation was necessary.

Applicants should consider the program requirements listed in the "Benchmark 2 Program Requirements" link above as they pertain to postsecondary college and career success.

- 6th-12th STEM-focused high school graduation plan: IGP with Endorsement, Performance Acknowledgement, and Distinguished Achievement.
- 6th-12th STEM career and college exploration, and college readiness preparation with students and parents to include college transition plan.
- Collaboration with IHE.
- All students should graduate with 12-30 hours college credit and be prepared for postsecondary coursework in STEM fields.

STEM college and career readiness is a major component of our program as the number of classes for high school credit, pre-advanced placement and STEM exposure offered to middle school students has increased each designated year. This focus on earning high school credits in middle school supports the early college focus of SECATI to ensure that all students complete high school with an associates degree in applied science. Specifically, we focus on preparation for applied science through the math, science, engineering, and technology high credits that students earn by eighth grade.

SECATI-E4 Academy has focused on a college and career readiness initiative implementing the Naviance College and Career Readiness platform to facilitate conferences with students to discuss transition/progress towards student's, Personal Growth/Graduation Plans and to update each student's Academic Performance Portfolio. Beginning in sixth grade, students are supported with organizational skills, using previous grade level transcripts to create SMART goals for academic success for the current year, assessing their learning styles, learning about STEM careers, and completing surveys related to college success and career exploration. The transition/progress conferences also ensure student success in the academy by tracking performance in core content areas at three week intervals, and tracking progress from academic interventions. The STEM Academy Coordinator and teachers monitor student records and PGPs. When student grades fall below 75 they re re-directed to an academic tutorial until mastery is achieved. Teachers are required to maintain parent contact logs which reflect that parents are notified when students grade fall below 75 to recommend tutorials or are above 85 to celebrate student success. Teachers also host Parent Nights each grading cycle to provide parents with information on student benchmark and academic progress towards STAAR/ EOC mastery, graduation and college or workforce entry.

All students are on track to graduate with 12-30 hours of college credit as they begin enrolling in these courses during their tenth grade year. By twelfth grade year, students are on track to earn the STEM distinction on their high school diplomas and an associates degree in applied science and professional certifications that make SECATI students workforce ready as well as college ready. The collaboration with Houston Community College (IHE) and STEM business partnerships with Genesis Works, The University of Houston and San Jacinto Community College support students with college coursework during the morning half of the school day and STEM workforce field experiences in the afternoon. This collaboration also facilitates students earning computer science certifications in SolidWorks, MatLab, C++, Java, Javascript and Python before graduation from high school. These certification enable SECATI student the opportunity to leave college debt free.

- Program requirement 2.2.C. highlights the importance of a strong Professional Learning Community for the success of all students.
- Review at the rubric continuum and tools in Example Artifacts from a successful Academy.

Describe how the campus will use these tools to progress into a "Mature" campus over time. "Staff regularly and consistently plans together, collaborates and shares ideas through meetings, website resources, teaming, team teaching, etc., and garners input from external experts." This description may include inquiry-based approaches, data informed decision making, Professional Learning Communities, collaboration, and integration of technology.

The SECATI-E4 STEM Academies have made tremendous progress towards mature with establishing and sustaining a collaborative professional learning culture. Our collaboration and study of professional literature has led to the development of several Professional Practice Manuals of Procedures that address effective planning, data-driven analyses and action, cognitive coaching, culturally relevant instructional practices, and scripted lessons for onboarding of new teachers. Professional Learning/Data Communities meet weekly during common planning time. Teams engage in learning according to developed protocols in their PLDC Manual of Procedures. Teacher teams participate in lesson and book studies with educational favorites and trending topics including Understanding by Design, Culturally Proficient Instruction Systemic PLCs at Work, How Teachers Turn Data Into Action, and Flipping 2.0. A professional learning calendar is created for the year to ensure teacher professional growth and development based on the goals of the Annual Campus Action Plan. The topics include Blended Learning; Rigor and Relevance, Data-Driven Dialogue, Classroom Community and Culture, Literacy Across Content, Effective Planning, Project-based learning, Assessment for Learning, and Differentiated Instruction. Professional learning is facilitated by teachers, STEM instructional coach, and campus leaders.

In addition to reading literature and implementing strategies from the aforementioned topics, the PLDCs spend planning time looking at student learning outcomes. This work is guided by the protocols-related critical friends group. All campus leaders are trained as Critical Friends Group Coaches. This framework engages teachers in discussions around student work, assessment development, learning gaps, effective interventions, teacher instructional dilemmas, peer observation feedback, modeling and coaching from instructional practice coaches. To learn and share best practices beyond the campus, SECATI-E4 has become a teacher development center offering professional development that deepens content knowledge and STEM pedagogy.

Collaboratives have been established with the Region IV Service Center for Math and Science teachers to engage in professional development monthly with experts in the field. Teachers deepen their content knowledge, learn to integrate technology and discover best practices for motivating students. The implementation of these practices are enhanced by the technology and instructional resources provided to teachers by the service center. Our teams travel to regional and national conferences annually to stay abreast of new and innovative strategies for teaching. Participating teachers then report back to the campus to provide training during the professional learning time to all teachers for campus-wide implementation of best practices. SECATI teachers are also receiving their certifications in SolidWorks and MatLab to offer students certification on SECATI campus instead of traveling to the HCC campus.

English Languages Arts teachers participate in the Professional Writers in the Schools project to blend the writing process of professional writers with the writing expectations of the TEKs curriculum. Professional writers hold weekly writing seminars with both teachers and students as a way to develop their writing skills and engage students in a writing process that in a non-traditional (test prep). Students and teachers publish their writing anthologies and present their work other educators at the Menil Art Museum annually.

Benchmark 3: Student Outreach, Recruitment, and Retention
Program Requirement: 3.1 Recruitment and 3.2 Open Access

3.1.A Develops structures and processes for marketing and recruitment to encourage participation from underserved students and families (transportation or plans for transportation to the school, child care for family events, and translation of all recruitment and marketing materials).
3.1.B Actively partners with feeder middle and/or elementary schools to develop student interest in STEM education and to increase advancement rates from middle school STEM to high school STEM.
3.1.C Develops a systemic recruitment plan that includes students, parents, counselors, teachers, district, and community.
3.2.A Develops an admission policy to include an open access, lottery-based selection process that encourages applications from all students. The application will not be based on state assessment scores, discipline history, teacher recommendation, minimum GPA, or other requirements that would be used to limit selection.
3.2.B Consists of a population that is 50% or greater economically disadvantaged and underrepresented students.

Key Elements for Success	Example Artifacts
• Written admission policy and application with lottery explained	• Recruitment schedule and locations (schools, churches, community centers, etc.) • Brochures and marketing items in English, Spanish, and/or relevant second language • Survey data (community input, enrollment trends, etc.) • STEM feeder school crosswalk recruiting curriculum • Plan to recruit with feeder schools • Documented support efforts (transportation, child care, etc.) • Needs assessment • Number and percentage of students matriculating from middle school STEM to high school STEM

Developing	Implementing	Mature	Role Model
1. Academy details a plan and process for marketing to and recruiting from appropriate communities and feeder schools to reach high need and underrepresented students.	1. Marketing and recruitment plan developed with input from key stakeholders, and targets feeder pattern, community needs, and cultural relevance.	1. Marketing plan highlights Academy's STEM pathways and Endorsements; and industry and higher education partners. Recruitment efforts include Academy staff, students, and parents. At least 80% of 8th grade MS STEM students matriculate to HS STEM Academy.	1. Students and staff from Academy collaborate with feeder schools to develop, deliver, and monitor recruitment results from STEM crosswalk engagement lessons conducted at the feeder middle schools. At least 90% of 8th grade MS STEM students matriculate to HS STEM Academy.
2. Academy has at least 50% economically disadvantaged and underrepresented students, via an open, lottery based admission policy, where the application *does not* include requirements that might deter students such as STAAR, grades, teacher recommendation, discipline, or attendance.	2. Clearly communicated admission policy that indicates target enrollment goals and implements support processes structures such as transportation, child care, etc. to meet goals. *And meets criteria from Developing*	2. Academy tracks enrollment data and indicates some increases in recruitment/enrollment rates. *And meets criteria from Developing and Implementing*	2. Academy employs a needs assessment to analyze demographic trends to ensure equitable access and recruitment of greater than 50% economically disadvantaged and underrepresented students and sustains a full complement of students at each grade level. *And meets criteria from Developing, Implementing, and Mature*

Benchmark 3: Student Outreach, Recruitment, and Retention
Program Requirement: 3.3 Student Support and Retention

3.3.A Develops and implements systemic, tiered strategies for student support and retention (outreach, early intervention strategies, mentoring, tutoring, counseling, and other supports for academic and socio-emotional growth).
3.3.B Hosts 5th – 6th and 8th – 9th orientation session(s) and summer bridge program(s) to facilitate successful student transitions and retention into a STEM-focused, college preparatory, project-based learning environment.
3.3.C Provides all students with opportunities and the expectation to assume roles of responsibility within the classroom, Academy, and community.
3.3.D Supports and monitors 6th – 12th student participation in STEM activities both within and outside the classroom to ensure that all students engage in STEM clubs, STEM competitions, and STEM field experiences.
3.3.E Hosts parent seminars to develop deep understanding and commitment to the rigor of college readiness and the high expectations of a STEM Academy.

Example Artifacts

- Student, parent, staff contracts
- Student retention and persistence plan
- Orientation and bridge agendas
- Exit interviews
- IGPs Minutes from persistence meetings, retention/attrition data
- Program adjustments due to student and community voice
- Copies of trainings and participation of parents/community
- Satisfaction/interest surveys from students, parents, community, staff, etc.
- Lists of clubs, service learning projects, STEM activities, STEM field experiences, and planned competitions

Developing	Implementing	Mature	Role Model
1. Academy develops a strategic plan for student retention and persistence, and maintains persistence rates above 70%.	1. Student persistence rates range between between 70-80% and the strategic plan addresses research-based supports such as annual IGP review, parental involvement, tiered interventions, and cultural relevance.	1. Student persistence rates range between 81-90%, and the strategic plan includes yearly metrics, analysis of why students leave, and a plan to identify and prevent at-risk students from leaving.	1. Campus engages in ongoing dialogue to address persistence data (lack of course credit, leaving the Academy) and uses data to ensure persistence rates above 90%.
2. Academy develops student orientation/summer bridge program(s), student clubs, and plans for external STEM activities and competitions.	2. The orientation/summer bridge program sets priorities and includes a timeline with skills, tools, and resources for students to successfully transition to a STEM environment.	2. The orientation/summer bridge program is implemented as planned and continually refined annually, with a complete scope and sequence and supporting materials.	2. The orientation/summer bridge program monitors initial student success, identifies struggling students early on, and ensures those students have additional support.
3. Students can select from a small number of leadership opportunities available.	3. The staff encourages students to select leadership opportunities.	3. The staff monitors student involvement in leadership and STEM activities, clubs, and competitions; and develops interventions for students who have minimally participated.	3. Student leadership is evidenced in nearly every non-classroom related initiative or event and at least 90% of students participate in leadership and/or STEM activities, clubs and competitions.
4. Academy creates STEM Academy orientation for parents and stakeholders.	4. Opportunities exist for parents and stakeholders to participate in service learning, and/or attend student presentations.	4. At least bi-annual opportunities exist for parents and stakeholders to participate in STEM activities.	4. Annual parent and stakeholder participation goals are developed and monitored for continued improvement.
	And meets criteria from Developing	*And meets criteria from Developing and Implementing*	*And meets criteria from Developing, Implementing, and Mature*

Benchmark 3: Student Outreach, Recruitment, and Retention

- Review Program Requirement 3.1.A/B/C and 3.2.A/B.

Describe the Academy's open-access admission policy, the marketing, and recruitment plan to parents, students, and the community; and partnering with feeder schools to increase advancement rates in STEM from elementary to middle to high school.

SECATI-E4 STEM admissions policy operates under an inclusive enrollment framework. After one year of functioning as a STEM Academy our value added data demonstrated that our curriculum, instruction, and assessment program grew 100% of all students in the program one or more grade levels in each content area. Over 85% of students with prior Stanford 10 performance below grade level grew two or more grade levels in one academic year. This data suggested that as a STEM academy implementation of a solid curriculum, instruction, and assessment program had more of an impact than prior test scores.
We enroll 83% of our students from the community in which the schools are situated. Parents and students are required to complete an application online. Students who live in the community have priority for open seats over students who live outside the school zone (E4 Only). SECATI operates under a district lottery system, where students are randomly selected not based on academic achievement. This ensures that our program services a minimum of a 95% economically disadvantaged population of students of color who are underrepresented in STEM college majors and career fields. It also ensures that students who fall in the middle are not excluded from an opportunity to learn at cognitively high levels and perform with their advanced student counterparts. This is a major conversation point with parents and the community when recruiting students for the following school year. We believe that students should not have to travel out of their community to receive a quality education that competes with students in affluent neighborhoods. SECATI-E4 STEM recognizes that collaboration between academies is the key to bridging both teacher instructional gaps and student learning gaps before they enter middle and high school. This point in mind, we began a STEM Mobile Clinic to travel to feeder elementary (E4) and middle school (SECATI)campuses to provide engaging lessons to students on STAAR tested science and math objectives. We also use this time to provide instructional resources and coach teachers on engaging best practices in the content to give students an early appreciation for STEM. Parents are invited to attend these clinics so that we can educate them on how to prepare their child for secondary STEM readiness which leads to STEM college and career readiness. The STEM Mobile Clinic is one of our major yearly recruitment efforts. Student Ambassadors were created to assist with hosting student orientation sessions, recruiting new students, supporting new students who enter the program mid-year, and serve as student escorts for the SECATI-E4 STEM Advisory Board and Dinner and Dialogue with the Principal. These students meet monthly to plan and engage in STEM related activities including the STEM career day, visits to feeder school campuses, community service projects, and academic clubs. In addition, through our T-STEM Afterschool programs students participate in community service projects and extracurricular activities.

- STEM Academies host orientation, summer bridge, and college preparatory seminars for parent and students; encourage student leadership, monitor student participation in STEM activities, clubs, competitions and field experiences; and develop intervention plans for students who minimally participate.
- STEM Academies maintain persistence rates above 70%, with a goal of at least 90%

Describe the campus plan to progress to "Mature" on the continuum for Program Requirement 3.3 Student Support and Retention (review the "Benchmark 3 Program Requirements" link at the top of this page).

SECATI-E4 campus leaders meet with parents and students each semester to review the student's individual growth plans (IGPs). During these meetings students receive grade level specific course selection guidance, plans for interventions to ensure success in core content courses, and continued counseling support to sustain either middle to high school transition, high school success, or transition from high school to college. Student leaders from the SECATI visit the E4 middle school each week to serve as advocates for facilitating middle school to high school transition, STEM Student Teaching Assistants in the STEM classrooms, and student leadership chaperones to travel to STEM field experiences. Course selection and middle to high school bridge and interventions are discussed with parents during the spring semester.

SECATI-E4 summer bridge programs support student transitions from 5th grade to 8th grade, 8th grade to 9th grade and 12th grade to college/workforce by offering: a 9-week algebra I course for high school credit to seventh grade students and all students who do not have the credit by completion of their eighth grade year; a summer bridge curriculum including pre and post assessments that simulate the Texas Success Initiative Assessment; and a week-long transition to college life experience at Houston Community College to ensure that they are on track to earning the high school diploma STEM designation and an Associate’s Degree in applied science by high school graduation. All students in the STEM early college high school enroll in college credit courses beginning their tenth grade year. Successful coursework with the completion of an Associates Degree is supported on the middle school level as students earn four high school credits in math and science courses, one social studies high school credit, and two elective course high school credits. In addition, as a Duke University TIPS academy, students in the program beginning at seventh grade take the SAT and are provided SAT/PSAT preparation tutorial courses on both campuses.

Students earn a postsecondary degree, attend college seminars, and participate in STEM lab activities through partnerships with Houston Community College, Texas Southern University, The University of Texas, and STEM business partners during school days, Saturdays, and the summer. The E4 STEM Academy hosts monthly parent activities including a biannual community extravaganza, parental education courses (GED, ESL, resume, fitness classes, health awareness, etc.), and informational meetings. Both campuses exhibit their senior Practicum or middle school projects from their learning experiences with our college and business partners. High school students are prepared for internships and placement/employment in the Houston-area with support from the Iron Yard Academy business partnership. A College and Career Readiness Day is hosted on the high school campus collaboratively with college admissions counselors to discuss topics including: financial aid, college admissions and scholarships, summer learning experiences for middle and high school students, as well as careers and course offerings in STEM. Collaboratively the STEM Coordinators plan a minimum of five college visits during the school year.

Benchmark 4: Teacher Selection, Development, and Retention

4.1.E.	Provides opportunities for ongoing professional development to improve teachers' content knowledge, technology embedded instruction, integrative STEM pedagogy, college and career readiness standards, instructional strategies for ensuring a successful P-20 pipeline, and leadership capacity.
4.2.A.	Develops a Professional Development (PD) plan for a sustained professional development model of continuous learning based on student results, teacher development, and the short- and long-term goals of the Academy.
4.2.B.	Adopts a systemic professional development model of continuous learning that addresses prioritized needs as informed and evaluated by multiple sets of quantitative and qualitative data (student assessment data, instructional/classroom evaluations, technological developments, workforce demands, demographic changes, and community/societal expectations and needs).
4.2.C.	Sustains a PLC by instituting job-embedded ongoing opportunities for continuous learning, peer coaching/mentoring, STEM externships, and participation in STEM teacher and leader cadres for teachers and administrators (research-based practices, content competence, new instructional strategies, technology integration, reflective inquiry, and student artifact analysis).
4.3.C.	Adopts and implements a plan for new teachers to include orientation, induction, acculturation, mentoring, professional development, and administrative support.
4.3.D.	Designs or employs innovative programs to support the recruitment and selection of highly qualified STEM teachers.

Key Elements for Success

- Master schedule with common planning time
- Teacher turnover rate
- Teacher mentoring program
- Written recruitment plan

	Developing	Implementing	Mature	Role Model
4.1.E	Academy has authority to hire "best" qualified for goals of the Academy and STEM blueprint requirements.	Develops a written plan for creative recruiting to ensure high qualified, effective teachers.	Develops annual needs assessment and actively implements a teacher recruitment and placement program.	Resources are allocated for recruitment of best qualified candidates, with the Academy partnering with teacher preparation programs such as UTeach, to recruit highly qualified teachers for Academy needs.
4.2.A. 4.2.B.	Develops PD plan with clear pedagogy expectations, aligned with mission goals, teacher needs, and student needs	Academy regularly uses diverse assessment tools/processes, enhanced media, adult learning theories, professional reflection time, problem-solving protocols, and self-paced learning with computer and human interaction for support, coaching, mentoring, and collegial interaction.	Needs assessment and PD plan address teacher and student retention to include teacher, student, and parent voice in decision-making process.	Meaningful partnerships with external organizations ensure progressive expectations for educators' application of content knowledge, curriculum design, and delivery.
4.2.C.	Develops a PLC plan that identifies ways in which teachers will work in collaborative teams to build shared knowledge and formative/summative data.	Teachers collaboratively develop 6th - 12th common essential student outcomes which reflect their efforts to build shared knowledge regarding best practice, (STEM integration, college and career readiness, 21st century skills,).	Teachers collaboratively clarify the criteria they use to judge quality of student work and criteria is consistently applied horizontally and vertically.	Teachers participate in externships and mentorships with higher education and industry. PLC plan is annually monitored, evaluated, and revised for effective practice.
4.3.C	Develops an Orientation plan aligned to Academy mission and vision, and teacher enculturation.	Induction plan addresses Academy expectations for instructional skills; interactions with students, parents, and community; classroom management; assessment of learning; technology; professional development; and mentoring.	Induction process is clearly enunciated, consistently practiced, and evaluated and revised for effectiveness.	Each new teacher participates in the induction process, is assigned a mentor teacher, understands the strategic goals of the Academy, and completes a Needs Assessment that identifies areas for individual professional development.
4.3.D.	Common planning time within the school day focuses on PLC collaboration.	Teams develop team-time norms, set goals, and evaluate effective use of team-time for curriculum development, student artifact reflection, parental involvement, etc. *And meets criteria from Developing*	Teams develop common metrics to measure and inform, in order to identify strengths and weakness in their individual practice, and to collaboratively improve their individual and collective efforts to help all students learn. *And meets criteria from Developing and Implementing*	Collaborative school-level planning is judged effective as evidenced by student learning outcomes. *And meets criteria from Developing, Implementing and Mature*

Benchmark 4: Teacher Selection, Development, and Retention

- Review program requirements for benchmark 4 in the link above.

Describe how the Academy will recruit, support, and retain highly qualified teachers. This should include plans for:

- Teacher recruitment and retention plan
- Sustained professional development (PD) plan which incorporates project-based learning and an integrated STEM curriculum into instructional practices based on qualitative and quantitative student data. (A timeline of planned PD will be uploaded in Benchmark 7.)
- A job-embedded Professional Learning Community with common planning times for collaboration.
- New teacher support (new to Academy and/or teaching profession).

Our teacher selection process is rigorous. Candidates complete a Teacher Self-Efficacy Survey which gauges beliefs inability to deliver content effectively; impact on student achievement; and impact on motivating students. Candidates rank order statements that describe teacher expectations. There is a writing sample with scenarios related to teaching their content, supporting struggling students, differentiating instruction, and establishing relationships. Candidates analyze student data and set goals for student learning. They observe teachers directly or a video of a teacher and give feedback on content delivery, checking for understanding, grouping, technology to facilitate instruction, and classroom management. Finally, candidates deconstruct a TEK and complete a mini-assessment of a standard related to their content and plan a lesson to lead students to proficiency. Once selected, teachers engage in professional learning that includes coaching and modeling to deepen content knowledge, a Project Based Learning Institute, and a STEM Best Practices Conference. Integrated STEM and PBL training begins in June of each year. Coaching and modeling is ongoing, consisting of STEM pedagogy, technology embedded instruction, PBL, book studies, peer observations, and data driven instruction.

Teachers receive training in June of each year regarding literacy in the content areas, teaching English Language Learners, and STAAR overview and strategies. Summer Curriculum Planning Institutes with a consultant are held to plan the curriculum for the year and train teachers on hard-to-teach concepts in each content area. The was implemented in response to the rigor of the revised TEKs, the focus on the Texas Success Initiative curriculum, and formal observations that revealed gaps in teacher knowledge of the content while planning and facilitating lessons. Select teachers attend the Summer AVID Institute to ensure program implementation with fidelity. SECATI-E4 STEM teachers also plan and learn together during weekly early dismissal professional development days. Teachers keep Professional Learning Evidence Portfolios which include: Teaching artifacts of lesson plans, activities, videos of their lessons, and observation protocols; Reflection artifacts of their educational philosophy and personal journaling of daily lessons focused on their targeted learning area; Development summaries and critiques of professional literature, their targeted area for professional growth and development, critiques of exemplar videos, and activities for off-site professional development attended. Assessment artifacts of student assessments of teacher materials, teacher self-assessments of instructional practice, and student grades; and School Community artifacts as proof that they are collaborating with their content team and communicating with parents.

Through focus groups, anonymous surveys, and teacher development grants SECATI-E4 has developed a Teacher Retention Model that has fostered collaboration, a supportive culture, and leadership capacity. Activities most successful include: monthly teacher recognition, yearly teacher reward ceremonies, invitations to the STEM Teacher Leadership Development Academy, monthly CHAT focus groups, the New Teacher CFG (teachers year one through three), and recommendations to participate in externship programs. Through career pathways highly effective teachers have time to support developing teachers. The grant provides stipends and professional development to teacher leaders in return for their agreement to remain with SECATI-E4.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.1

- Course syllabi, lesson plans, unit lessons, PBL, scope, sequence, pacing guides
- Lessons include STEM standards, state standards, national standards, college and career readiness standards, 21st century skills
- Benchmark schedule, course passing rates, retention rates
- Student portfolios, IGPs, counseling, advising, college crosswalk, and feedback loop
- Plans for PSAT, Accuplacer, TSI, CTE, interventions, etc.
- Horizontal and vertical alignment of curriculum
- Students graduate with Endorsements & Performance Acknowledgements

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.1.A.	Aligns curriculum, instruction, and assessment (such as, but not limited to, Texas CCRS, national and state standards, content, context, culture, cognitive level, competencies, skills, processes, 21st century skills, and STEM synthesis).		*Implementing*		
5.1.B.	Develops a scope, sequence, and pacing guide for a vertically and horizontally aligned curriculum centered on state standards, career and college readiness standards, STEM integration, and industry expectations.		*Mature*		
5.1.C.	Develops an assessment and intervention plan to address gaps in student achievement and areas for extension.		*Mature*		
5.1.D.	Supports and encourages all students to successfully complete four years of mathematics, four years of science, four years of STEM electives, and at least one Endorsement in STEM, Business and Industry, Public Services, or Arts and Humanities, with a primary focus on a STEM Endorsement; and earn a Distinguished Level of Achievement as well as a Performance Acknowledgement in order to graduate college ready.		*Mature*		
5.1.E.	Offers dual credit, articulated concurrent enrollment, AP or IB courses that all students will graduate with 12-30 college credit hours.		*Mature*		
5.1.F.	Establishes curriculum expectations, monitoring, and accountability mechanisms that are reflectively revised to ensure a constancy of mission purpose (aligned resource allocation, integrated STEM curriculum development, teacher professional growth, and student results).		*Implementing*		

5.1 Rigor

- Review the program requirements for Benchmark 5.1 Rigor on the previous page.

Describe how the Academy will progress along the continuum. This should include plans for:

- Alignment of curriculum and instruction as supported by assessment
- Assessment/intervention or acceleration plans for students
- Plan for four tears of math, science, and 12-30 college credit hours (dual credit/AP/IB)
- HS Endorsements available to Academy students

Content Professional Learning/ Data Communities meet during planning time to analyze previous years data and develop assessments during the summer months for the school year with the following assessment blue prints and tested-standards: Texas Success Initiative, STAAR/EOC, National Math and Science standards, and Iowa Achievement Test skills. Scope and sequence planning is determined by selecting, power standards, for each content area. These standards are determined by their yearly testing frequency, trends in campus performance, and proportion of tested questions. Assessments of the taught curriculum are administered every four weeks.

The Curriculum Planning for Mastery Learning and Data Into Action Framework is used to analyze the data and plan response to intervention action plans for students as needed. All middle school students begin the school year by completing a diagnostic exam in each content area that tests them on both the readiness concepts they will learn the current year and supporting concepts they should have learned the previous year. This assessment helps us to align remediation courses to quickly bridge gaps and/or advanced track courses for students who show early readiness to complete the next grade level curriculum during the current year (i.e. 7th grade math in sixth grade for algebra I readiness in seventh grade). Students needing remediation are double-dosed in an accelerated middle school math class or reading class with a certified teacher.

High school students are scheduled in a math models course when intervention is needed. All high school students complete the Texas Success Initiative Assessment as the diagnostic exam so that data tracking towards bridging necessary gaps is accomplished before students enter their tenth grade year. Students must master the TSI by the end of ninth grade to begin enrolling in courses for college credit in tenth grade with our higher education partner. Because students earn enough credits to enroll in high school as sophomores, planning for four years of math and science with dual credit is much easier to accomplish. SECATI-E4 has the goal that 100% of students will graduate with the STEM endorsement. Students will also complete a minimum of 12 courses for dual credit/AP whether they complete the associates degree program or not. Because middle school students leave eighth grade with the biology credit, the high school will pilot the physics course for ninth grade students during the 2015-2016 school year. This pilot is expected to open more opportunities for students to take dual credit courses and ensure that more students participate in the associates degree program.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.2

- Defined engineering coursework (Infinity Project, Project Lead the Way)
- Student journals, student presentations, peer performance assessment rubrics, and peer mentors
- Self-paced learning, student contracts, progress reports, exit interviews, parent/teacher/student conferences
- Lessons include work force clusters, expert practitioners, field-based learning, research of current issues, PBLs, guest speakers, differentiation, intervention and acceleration plans, student choice
- Number of offerings and number of students participating in co-curricular activities, clubs, academic teams, and competitions (UIL, Brain Bowl, Science Olympiad, Model UN, FIRST, BEST, Vex etc.)
- Design conceptual internships, identify STEM opportunities, business partners, scientific organizations, and universities
- IGP w/capstone project (research, annual review, and analysis)

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.2.A.	Delivers innovative STEM programs that are well-defined, embed critical thinking and problem solving, innovation and invention, and are aligned to state and/or national standards and industry expectations.	*Implementing*			
5.2.B.	Supports and encourages students to complete three years of STEM electives at middle school and four years of STEM electives at high school.	*Mature*			
5.2.C.	Develops performance-based and project-based assessments aligned to these innovative programs and state/national/industry standards.	*Implementing*			
5.2.D.	Develops and implements a plan for supporting accelerated student achievement for students with demonstrated deficiencies or proficiencies in mathematics and science, to promote all students graduating ready for enrollment in credit-bearing postsecondary courses (e.g. Algebra I enrollment by 8th grade).	*Mature*			
5.2.E.	Incorporates into the curriculum work-based contextual learning with a global perspective.	*Implementing*			
5.2.F.	Participates in extra-curricular academic activities centered on science, technology, engineering, and mathematics; i.e. STEM field experiences, clubs, and competitions.	*Mature*			
5.2.G.	Develops 6th-12th students' portfolios of interest in: STEM capstone projects, STEM internship opportunities, and global STEM college, degree, and career explorations. Requires all high school students to complete an internship, and/or a STEM-related capstone project, presentation, and defense; primarily focused in the state's STEM-related economic development clusters (information and computer technology, energy, petroleum refining and chemical products, advanced technologies and manufacturing, aerospace and defense, biotechnology and life sciences.).	*Implementing*			

5.2 STEM-Focused Curriculum

- Review program requirements for Benchmark 5.2 STEM-Focused Curriculum on the previous page.

Describe how the Academy will progress along the continuum. This should include plans for:

- Well-defined STEM programs that are aligned with state, college and career readiness, and industry standards and embed critical thinking and problem solving, and foster innovation and invention
- Three years of STEM electives at middle school and four years of STEM electives at high school. For high schools, list the CATE elective pathways and courses that support each Endorsement offered by the Academy
- Performance and project-based assessments aligned to state, college and career readiness, and industry standards
- Work-based and contextual learning in the curriculum
- STEM-focused extracurricular activities (field experiences, clubs, and competitions)
- STEM-related internships and/or senior capstone projects, presentation, and defense
- Plan for 6th-12th student STEM portfolios

Our collective school vision is to provide all students with a rigorous standards-based academic program that promotes critical thinking, innovation, applied, and collaborative learning. We use a digital learning tool to implement instruction and intervention plans that address gaps in student learning and areas for extension for advanced learners. The middle school and high school campuses will continue to implement the mandated HISD curriculum and ensure that career and college readiness standards, STEM integration, and STEM- related industry expectations are embedded daily. This year, students began using their laptops for course work across content areas to quickly access critical readings and complete performance-based and project-based learning activities.

All high school students have laptops at a 1:1 ratio for home and school use. The 1:1 ratio was piloted in all math and science classrooms on the middle school level this year, with full implementation across all classrooms next year. Students are exposed to STEM electives grades six through twelve at the SECATI-E4 STEM Academy. They begin robotics in sixth grade using the Lego Curriculum and robotics kits. Seventh grade we implement the Infinity Engineering Curriculum and students continue to compete in the First Lego League robotics competition. By eighth grade, students enroll in the Principles of Technology course for high school credit, and they compete in more rigorous robotics competitions that require graphic design, building, and programming skills. Because our high school component focuses on computer programming applied science, each elective whether for high school credit or college credit, is aligned with industry standards, embeds critical thinking and problem solving, and fosters innovation and invention. Our students have taken the spotlight in Universal Interscholastic League math, science, debate, and history.

SECATI-E4 STEM students on both campuses participate. Students participate in robotics on three levels. Level one consist of the sixth and seventh grade students competing in First Lego League, Waterbotics and Space Center Houston Robotics. Level two consist of grades 8th - 12th students competing in the BEST (Boosting Engineering Science and Technology) Robotics Competition and First Tech Challenge. Level three consist of 10th - 12th grade students competing in VEX Robotics and the First Robotics Challenge. Students assist in planning and hosting district level robotics competitions. High school students are required to present their culminating projects to peers and faculty through electives: computer technician, comprehensive software, database theory and design, computer programming (advanced and introductory course), and scientific research/design courses.

In addition, our high school students participate in job shadowing, internships and externships at numerous state and local universities, industry forums and earn-entry level industry level certifications. In fact, three courses lead to Solid-Works, IC3 and MatLab certifications.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.3

- Peer observations, mentors, cross-curricular teams
- Walkthroughs, observations, model lessons
- Data informs scaffolding, re-teaching, and extension
- Team planning that defines student products, assessments, rubrics, and standards for cross-curricular and other PBLs, teacher research on STEM field expectations, current issues, and technology.
- Student presentations include digital materials, peer and internal/external expert evaluation
- Academy teachers have mentors at university and industry level that provide input to curriculum development
- Year-at-a-glance checklist documenting course coverage of state standards, 21st century skills, college readiness standards throughout grading period

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.	**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance

5.3.A.	Incorporates data-driven instruction.	*Mature*
5.3.B.	Creates an environment for shared teacher responsibility and accountability for student learning across programs, content areas, and classrooms.	*Mature*
5.3.C.	Organizes instructional expectations around problem-based and project-based learning with clearly defined learning outcomes for students and teachers that address state and national performance standards, college and career readiness standards, and industry expectations.	*Implementing*
5.3.D.	Ensures teachers' use of the aligned scope and sequence and integration across the disciplines.	*Mature*
5.3.E.	Ensures teachers' use of high-quality curricular materials aligned with state and national standards, college and career readiness standards, and industry standards.	*Mature*
5.3.F.	Provides opportunities for students to exercise choice and voice within a relevant and rigorous context.	*Implementing*

5.3 Instructional Practices

- Review the program requirements for Benchmark 5.3 Instructional Practices on the previous page.

Describe how the academy will progress along the continuum. This should include plans for:

- Data driven instruction
- Shared teacher responsibility and accountability (PLC)
- Project Based Learning (PBL)
- Alignment of scope and sequence with state, CCRS, and industry standards
- Students exercise choice/voice within relevant and rigorous curriculum

The Academy has developed a Curriculum Planning for Mastery Learning and Data Into Action Framework for teachers and campus leaders to collaborate in professional learning/data communities to study assessments, to determine instructional best practices for teaching tested objectives, and to analyze data using a series of transformational learning protocols. Once assessments are administered Content Professional Learning/Data Communities meet during planning time to: disaggregate data to identify student performance groups, conduct item analyses for causes for assessment performance, collaborate to study and practice best instructional practices, develop goals for future assessments, select instructional strategies for re-teaching low objectives, make decisions regarding response to intervention for individual students, and determine results indicators for student progress. This dialogue happens in the campus,Data Into Action Room, where individual teacher instructional strengths and weaknesses regarding each assessment are posted by content area. Reteach Action Plans are driven by low objectives identified for each assessment. Each student's data is placed in their Academic Performance Portfolio and STAAR projection parent conferences are held to explain student progress to parents.

Teachers determine pacing, scope and sequence, unit plans, learning modules, projects, and proficiency rubrics according to prior year data and blueprints that are aligned with STAAR, EOC, Texas Success Initiative, and Iowa Achievement Test standards during Summer Curriculum Planning Institutes. Teachers receive professional development support from campus-based Content Instructional Practice Coaches with: creating assessments, developing rubrics, and implementing instruction that is cognitively aligned with standards. The SRT-STEM Center will provide professional development on formative assessments, Engineering and Design, and project-based learning. The coaching and mentoring model facilitated by STEM consultants consists of walkthroughs and model lessons focused on student engagement, differentiation, and collaborative learning. Our partnership with Rice University supports mentorship for teachers for deepening content knowledge and curriculum planning through the Rice Excellence in Secondary Science Teacher program and Rice University School Mathematics project. Teachers engage in content-specific courses year round to build their capacity to teach with the level of depth and complexity needed for student's success on state assessments and college entrance exams.

Teachers share the responsibility for student learning through team teaching. Teachers also share responsibility by having conferences as a grade level teacher team with students and parents to discuss students' academic progress at least once each grading cycle. Project Based Learning for sixth through eleventh grade students and Capstone projects for twelfth grade students are implemented utilizing the Engineering by Design Curriculum and National Educational Technology Standards for Teachers Achievement Rubric to embed technology in all projects. Teachers plan senior projects and workforce application in the Comprehensive Software college credit course with the STEM partner Genesis Works. The T-STEM Coordinator works with a five member team consisting of a grade level teacher, our industry partners, a district Career and Technology representative, and student leaders to define student products, rubrics, assessments, and standards for cross curricular and other PBLs, teacher research on STEM field expectations, current issues, and technology.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.4

- Project Based Learning (PBL)
- Systemic expectations for number of presentations per class, documentation of students presenting to internal and external panels
- Design teams, group projects, multiage projects, simulations, robotics teams, green teams
- Project scenarios based on real-world issues (Future City, FIRST, Odyssey of the Mind, etc.)

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.4.A.	Promotes instructional strategies that challenge students to think critically, innovate and invent to solve real-world, contextual problems.	*Mature*			
5.4.B.	Exposes students to critical readings in STEM-related fields and requires students to demonstrate their understanding of STEM disciplines in a work-based, contextual environment.	*Implementing*			
5.4.C.	Offers standards-based STEM programs that incorporate integrative STEM literacy and innovative instructional tools.	*Mature*			
5.4.D.	Promotes applied and collaborative learning, and provides students with opportunities to present/defend their work to peers, community, industry, and university leaders.	*Implementing*			
5.4.E.	Promotes a rich culture that incorporates a natural use of current technologies to enhance instruction, curriculum, teaching, and learning, and STEM literacy.	*Implementing*			

5.4. STEM Education Integration

- Review the program requirements for Benchmark 5.4. STEM Integration on the previous page.

Describe how the Academy will progress along the continuum. This should include plans for:

- Students apply critical thinking, innovation and invention, to problem-solve real-world scenarios.
- Student exposure to STEM related fields and understanding of STEM disciplines in a work-based, contextual environment
- Students present/defend their learning (PBLs and capstone projects) to external experts
- Use of current technologies to enhance instruction, curriculum, teaching and learning, and STEM literacy

SECATI-E4 uses the SMART Board, MobiView, advanced student response systems, iPads, as well as mobile digital learning tools to implement instruction and intervention plans that address gaps in student learning and areas for extension for advanced learners. We implement the mandated HISD curriculum and ensure that career and college readiness standards, STEM integration, and STEM- related industry expectations are embedded daily. Students use their laptops on a 1:1 ratio for all course work across content areas to quickly access critical readings and complete performance-based and project-based learning activities. Through our Linked Education Learning program students have the opportunity to use technology to present/defend the work to peers, community, STEM industry partners, and university partners.

Critical thinking, problem solving, and innovation in classes are embedded in all STEM classes through project-based, performance-based, and senior practicum projects. The Infinity, Engineering by Design, Texas College and Career Standards, Next Generation Science Standards, as well as input from industry and higher education partners are used to engage students in PBL research and design units in computer science, engineering elective courses, and STEM core content courses. Because our multi-layered focus in the middle and high school level, research projects and collaborative units of study are taught utilizing Blended learning as the major vehicle by which students will receive instruction. Students are required to engage in a project based learning project each six weeks.

Leadership development is supported through these projects because students work together to design, build, and compete in ecofriendly competitions such as BEST robotics. Students mainly focus on renewable energy while preserving the ecosystem. Research skills are developed through their yearly Get Hip to Habitat research with the Galveston Bay Foundation to restore the Galveston's coastal shore. Students reflect on their learning via oral and written presentations supported by ELA teachers. They also connect classroom learning with field experiences through partnerships with Port of Houston, Texas Parks and Wildlife, KidWind Energy, Challenger Seven, and University of Texas. The high school focus is applied science which embeds hands-on application in all courses and units of study.

Students engage in work-based experiences and are given opportunities to invent and solve real-world contextual problems through such courses as: database theory and design, finite math with applications, web programming, workforce development, information technology security, computer programming, and engineering mathematics. At the end of each course students are required to compete a project and present the project to their peers and attending college faculty.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.5

- Academy-developed process in place to identify STEM and content relevant vocabulary and just-in-time literature
- Plan for vertical and horizontal expectations, per grade level, of STEM vocabulary and relevant literature
- Literature- and language-rich environment which includes technical language journals, articles, periodicals, current events newspapers, online resources, webinars, and texts
- STEM-focused strategies and activities such as word walls, student journals, literature circles, mock trials, student forums, debates
- Stakeholder input into selection of STEM instructional materials student goals and reflections (literacy in STEM, 21st century skills, technology, etc.)
- Integrative instruction and instructional materials

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.5.A.	Promotes technologically proficient and scientifically literate students with highly developed academic vocabulary and STEM technical vocabulary.	*Mature*			
5.5.B.	Graduates 21st century literate students proficient in: English, reading, speaking, writing, numeracy, arts, health, sciences, and world languages; government, civics, history, and geography; environmental science; global awareness; information, communications, and media technology; and financial, economic, business, and entrepreneurship.	*Mature*			
5.5.C.	Selects appropriate STEM curriculum and culturally relevant instructional materials that foster widespread use of literacy strategies within the STEM curriculum.	*Implementing*			
5.5.D.	Provides opportunities for students to demonstrate the relevancy of the content through reading, writing, speaking, and presenting.	*Implementing*			

5.5. Literacy

- Review the program requirements for Benchmark 5.5 Literacy on the previous page.

Describe how the Academy will progress along the continuum. This should include plans for:

- Technologically and scientifically literate students
- 21st Century skills-literate students
- STEM curriculum and culturally relevant instructional materials
- Academy literacy plan

SECATI-E4 uses a digital learning tool to implement instruction and intervention plans that address gaps in student learning and areas for extension for advanced learners. We implement the mandated HISD curriculum and ensure that career and college readiness standards, STEM integration, and STEM- related industry expectations are embedded daily. Students use their laptops for all course work across content areas to quickly access critical readings and complete performance-based and project-based learning activities. All students are provided online access to research journal databases and content-specific resources including: EBSCO host, NBC Learn, Discovery Education, NetTrekker, and Gale Cengage. Through our Linked Education Learning program students have the opportunity to use technology to present/defend the work to peers, community, STEM industry partners, and university partners. In an effort to promote technologically proficient and scientifically literate students with highly developed academic vocabulary and STEM technical vocabulary students use assigned Edmodo codes to build on current knowledge making full use of technology-based textbooks.

Teachers create rubrics and plan student assignments that embed technology by following the National Educational Technology Standards for Teachers Achievement Rubric. All courses in the master schedule implement pre-advanced placement or advanced placement curricula. Instructional strategies are culturally responsive, relevant and bolster student development of 21st century skills. Common strategies in all classrooms include the use of interactive journals for writing to learn, Cornell structured note-taking, magnet summarizing, and word walls. Our students are afforded opportunities to develop healthy writing and reading comprehension through the Reader's and Writer's workshop framework. They are learning to explore and expand knowledge via individual choice of novels, articles, and topics to write about. The SpringBoard curriculum is used in all math and reading courses as a college readiness bridge that equips students with a variety of metacognitive strategies to deepen their learning.

We also provide the EBSCO By offering courses for high school credit on the middle school level and courses to earn an associate's degree on the high school level, students get multiple opportunities to develop competence in critical thinking, creative thinking, leadership, collaboration, effective communication, and technology. A strong foundation in technology also happens through robotics, principles of technology, and engineering for middle school students. Computer science courses, robotics, biotechnology, and course work for certifications in Solid-Works, IC3 and MatLab/Simulink are offered for high school.

To encourage creative thinking and writing our students work with professional writers through our WITS collaborative. This has excited our students to write making them aware that writing is a viable career option. Students read articles and texts in the STEM areas daily as part of the literacy across content areas initiative. Each article discusses content aligned with Texas standards. Students demonstrate all areas of literacy by participating in book studies, literature circles, and socrative seminars to discuss knowledge learned from the literature. Students present and publish their work/research during these discussions. They also participate in local and regional academic conferences.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.6

- Data informs instruction, plan for gaps and extension
- Curriculum aligned with standards, STEM, industry, and higher education
- Formative, diagnostic, and summative assessments, lesson redesign
- Student artifact reflection is used to inform diagnostic tools and processes
- Pre/post tests, cumulative folders, parent conferences, parent portal, student learning logs
- Pre-assessments/ post-assessments, course offerings for interventions, grades, end of course exams, student presentations, narrative assessments, oral assessments, product based assessment
- IGPs, progress reports, student information sheets, home visits, parent conferences, PEIMS info, call logs, counseling schedule/visits
- Student designed projects, project rubrics, peer reviews, panel reviews, adult/expert reviews
- Project lists knowledge and skills, 21st century skills and levels of skill mastery; course syllabus provides list of performance-based assessments; PD for teachers on developing PBLs

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.6.A.	Uses diagnostic, ongoing, and vertically and horizontally aligned formative and summative assessments for all students to drive instructional decisions.	*Mature*			
5.6.B.	Uses state and national standards, college and career readiness standards, industry standards, and STEM program requirements to develop common benchmark assessments.	*Mature*			
5.6.C.	Employs student readiness assessments or diagnostics to identify and address gaps in learning.	*Mature*			
5.6.D.	Tracks and reports student progress using student information systems.	*Mature*			
5.6.E.	Uses performance-based assessments that allow students to demonstrate their understandings of STEM concepts.	*Mature*			

5.6 Assessments

- Review the program requirements for Benchmark 5.6 Assessments on the previous page.

Describe how the Academy will progress along the continuum. This should include plans for:

- diagnostic, ongoing and vertically and horizontally aligned formative and summative assessments;
- state, college and career readiness, and industry standards alongside STEM program requirements;
- student readiness assessment to address gaps;
- student information systems to track progress; and
- performance based assessments that demonstrate student understanding of STEM concepts

The Houston Independent School District currently uses the EdPlan student assessment database to support creating assessments and analyzing data to drive instruction and response to intervention efforts. Diagnostic exams for student readiness are administered the first week of each semester in each content area that tests students on both the readiness concepts they will learn the current year and supporting concepts they should have learned the previous year. This assessment helps us to align remediation courses to quickly bridge gaps and/or advanced track courses for students who show early readiness to complete the next grade level curriculum during the current year (i.e. 7th grade math in sixth grade for algebra I readiness in seventh grade). High school students complete the Texas Success Initiative Assessment as the diagnostic exam so that data tracking towards bridging necessary gaps is accomplished before students enter their tenth grade year. Campus-based formative assessments are administered every four weeks as well as beginning of the year, fall, and middle of the year assessments to track schools progress towards TEA accountability standards. The SECATI-E4 Academy (middle school and high school campuses) uses the EdPlan resource to create comprehensive data reports.

The Academy has developed a Curriculum Planning for Mastery Learning and Data Into Action Framework for teachers and campus leaders to collaborate in professional learning/data communities to study assessments, to determine instructional best practices for teaching tested objectives, and to analyze data using a series of transformational learning protocols. Once assessments are administered data driven dialogue is used to: disaggregate data to identify student performance groups, conduct item analyses for causes for assessment performance, collaborate to study and practice best instructional practices, develop goals for future assessments, select instructional strategies for re-teaching low objectives, make decisions regarding response to intervention for individual students, and determine results indicators for student progress.

This dialogue happens in the campus Data Into Action Room where individual teacher instructional strengths and weaknesses regarding each assessment are posted by content area. Reteach Action Plans are driven by low objectives identified for each assessment. Each student's data is placed in their Academic Performance Portfolio and STAAR projection parent conferences are held to explain student progress to parents. Performance-based assessments are administered in all science, engineering, and computer applications courses. Teachers develop rubrics for assessing proficiency of each standard.

Benchmark 6: Strategic Alliances

Program Requirements

6.2.A.	Identifies and secures key business, industry, and community partners to support STEM Academy efforts (mentorships, service learning projects, etc.).
6.2.C.	Identifies and secures key business and industry partners to provide STEM-related job shadowing, internships, and externships for students and teachers.
6.3.A	Develops a Memorandum of Understanding (MOU) for dual credit.
6.3.C	Develops partnerships to support a college going culture and to provide STEM graduates access to college support services (college trips, college entrance aid, GEAR UP and P-20 initiatives).
6.1.B	Provides opportunities to educate students/parents on STEM Academy expectations such as parental engagement, college connections, scholarship opportunities, mentorships, etc.

	Developing	Implementing	Mature	Role Model
6.2.A 6.2.C	Initiates a few partnerships with business, community, and industry.	Initial contact made and some support is provided by community business partners. Business and industry relationships are limited to onsite mentoring activities and some minor financial support.	Partnership with business and industry is formalized via established agreements. Outcomes and expectations are concrete and regularly reviewed. Partnership is evident by two-way communication of goals and vision as to what the STEM program provides.	Each major academic area is sponsored by corporate or community partners. Industry representation is a key component of the STEM strategic planning process. Integration of Academy students in business and community activities is visible.
6.3.A 6.3.C	Initial contact made and some support is provided by higher education organizations. Some courses are available to enhance STEM curriculum integration.	Develops Higher Ed connections to facilitate MOUs, crosswalk plans, teacher mentors, and externships.	Partnerships and MOUs with higher education communities are an integral component of Academy delivery model.	College credit is given to STEM students upon completion of academic work sanctioned by accredited colleges. Admission rates for STEM students to IHE exceed the normalized rates for all students within the sponsor school system.
6.1.B	Minimal strategic communications with parents and families.	Regularly scheduled distribution of communications is planned and presented to key stakeholder groups. *And meets criteria from Developing.*	Strategic communications are timely and are developed ad hoc as conditions warrant. Key messages are presented by leadership emphasizing the importance of the communication to the intended audiences, via community town halls, PTO meetings, advisory board meetings, and school board presentations. *And meets criteria from Developing and Implementing.*	Real time communications are evident via communications technologies such as websites, newsletter articles, and media presentations using the community's public service forums, (public television and radio). Leadership is easily accessible and continuously engages partnerships with stakeholders in community and student families. *And meets criteria from Developing, Implementing, and Mature.*

Benchmark 6: Strategic Alliances

- Review the program requirements for Benchmark 6 above.

Describe how these strategic alliances will support the Academy. The description should include details regarding the role of each IHE, business, and/or community partnership; along with parent/family partnerships and communication conventions with the Academy.

Business and higher education partnerships have been established to provide the SECATI-E4 STEM academy students with field and classroom experiences related to earth, energy, and environmental engineering. Texas Southern University College of Science and Technology has partnered to engage our middle and high school students in robotics and lab activities that are hosted on the TSU campus each month. Students attend professor led seminars on various STEM topics. They are also exposed to STEM fields and enrichment activities during a four week summer program. Our partnerships with University of Texas Medical Branch provide similar STEM exposure to our students and professional learning for all STEM teachers. Our partnership with Houston Community College provides both STEM field experiences for our middle school students and an Associate's degree program in applied science to our high school students. These partnerships support our efforts to create a college going culture as most of the student learning experiences are hosted on the college campus. Further, all classrooms promote the college-bound focus with a college or university focal point on doors and on bulletin boards within the classroom. College trips, financial aid seminars, and college entrance exams preparation are planned throughout the school year beginning on the middle school campus.

The Challenger Seven Learning Center engages our students in animal science activities. Students learn about animal survival in the environment including TEKS-based instruction related to ecosystems, and man's impact on the environment. Texas Parks and Wildlife Sheldon Lake State Park and Environmental Learning Center allows high and middle school students to complete summer environmental science research projects. E4 students complete soil and water sample ecosystem activities during the summer STEM camp, compete in fishing events during the year, complete lab activities related to environmental science. The Galveston Bay Foundation, Get Hip to Habitat, program engages students in a student led project where they set up their campus marsh grass nursery ponds and investigate the causes and solutions for any loss of health or survival. Other partnerships including Houston Museum of Natural Science, the Port of Houston, Genesis Works, Ocean Star, and Offshore Museum in Galveston support our program with engineering and science based field trips, internships, externships, and job shadowing experiences in coding and robotics.

SECATI-E4 STEM Academy has a newly established partnership with Mobile Encryption Technology, AT&T and Microsoft that is supporting our initiative to provide mobile devices to every student for implementation of blended learning in every classroom.
The STEM Advisory Committee meets quarterly to discuss academy progress. The committee includes parents, teachers, and business members in the community. Decisions regarding program change are voted on by the committee before implementation. Minutes of each meeting are mailed out to parents and stakeholders, and displayed in the main office of both campuses. Recommendations which are stated in the meeting minutes made during each meeting are presented to the advisory board for review and approval.

Benchmark 7: Assurances

The following document must be attached in order for the T-STEM Designation application to be submitted.

Official signature: Official signature of a district or charter official authorized by the local board to bind the applicant organization in a legally binding contractual agreement.

View Document

Dual Credit MOU: The district or CMO provides assurance that a Memorandum of Understanding (MOU) with an Institution of Higher Education that defines the dual credit agreement is current (for the 2016-2017 school year). The MOU must be signed by all parties and ensure that sufficient detail are included and is on file at the T-STEM Academy. The executed IHE MOU for dual credit must be available for review by TEA upon request.

☑ Assurance Provided

If the T-STEM Academy is only providing AP coursework, list the AP courses that will be taught in the 2016-2017 school year.

Professional Development Plan: The T-STEM Academy applying for designation, provides assurance that a Professional Development Plan detailing the types, frequency, the provider of STEM professional development to be provided during the 2016-2017 school year, and is on file at the T-STEM Academy. The professional development plan must be available for review by TEA upon request.

☑ Assurance Provided

Business Agreement: The T-STEM Academy applying for designation, provides assurance that a minimum of one business agreement is current (for the 2016-2017 school year), signed by all parties, provides sufficient detail regarding the role of each party, (which allows students to participate in internship programs, capstone projects, or conduct field work) and is on file at the T-STEM Academy. The business agreement must be available for review by TEA upon request.

☑ Assurance Provided

2016-2017 Master Schedule: The T-STEM Academy applying for designation, provides assurance that the proposed master schedule, demonstrating a commitment to STEM education, rigorous coursework including Dual Credit, AP, or IB courses, and a vertically and horizontally aligned curriculum is on file at the T-STEM Academy. The 2016-2017 master schedule must be available for review by TEA upon request.

☑ Assurance Provided