



Humble High School T-STEM Academy
T-STEM Renewal Application
2018-2019

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Background

District Affiliation

HUMBLE ISD

DC #: 101913

Region: 04

Mailing Address (Line 1): 20200 EASTWAY VILLAGE DR

Mailing Address (Line 2):

City, State, Zip: HUMBLE, TX 77338

School Affiliation

HUMBLE H S

CDC #: 101-913-001

Region:

Mailing Address (Line 1): 1700 WILSON RD

Mailing Address (Line 2):

City, State, Zip: HUMBLE, TX 77338

Academy Information

T-STEM Academy Name:

Humble High School T-STEM Academy

What grade level range will your academy serve in the 2018-2019 school year?

9-12

Grade Level	Number of Students
9	60
10	29
11	20
12	3

Contacts

Business Partner

Affiliation: Purcell Construction

Job Title: Site Administrator

Full Name: Mr. Jed Purcell

Email: jed@purcellc.com

Phone Number: 281-548-1000

Superintendent

Job Title: Superintendent

Full Name: Dr. Elizabeth Fagen

Email: efagen@humbleisd.net

Phone Number: 281-641-8001

Applicant

Job Title: Principal

Full Name: Mrs. Donna Ullrich

Email: donna.ullrich@humbleisd.net

Phone Number: 281-641-6300

IHE Liaison

Affiliation: Lone Star College Kingwood

Job Title: Director of Academic Partnerships and Initiatives

Full Name: Ms. Kellie Sullivan

Email: Kellie.Sullivan@lonestar.edu

Phone Number: 281-312-1553

Narratives

Model Implementation

Which T-STEM model does the district intend to implement at this time? Within these models, there are variations. For this purpose campus is defined as a CDC number not a physical location.

School-Within-School (SWS) - A subset of students on the campus are enrolled in grades 9-12 are enrolled in the T-STEM academy.

Endorsements

Identify the current endorsements that are offered:

- Science, Technology, Engineering, and Mathematics (STEM)
- Business and Industry
- Arts and Humanities
- Multi-disciplinary Studies

Industry Certificates

Identify all industry certificates offered to students.

Certificate	Description
OSHA 10 hr. General Safety	National Safety Standards Training
AutoDesk: AutoCAD	Computer Aided Drafting - General Focus
AutoDesk Inventor	Computer Aided Drafting - Engineering Focus
IC3 (Internet Core Competency Certification)	Computer Literacy with Operating Systems, Hardware, Software, and Networks

Level One Certificates

Identify all level one certificates offered to students.

Certification	Description
Computer Programmer Certificate Level 1	Lone Star College 1 year program Technology Solutions for Business & Industry

Level Two Certificates

Identify all level two certificates offered to students.

Certification	Description
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Key Elements for Success

Provide a link to the job description, roles of design team, leadership team, and advisory board.

<https://goo.gl/pBEJyP>

Provide a link to your mission statement.

https://docs.google.com/document/d/1Lt90RgbnS2_x1Dx-wHff7yi5JEJi7tR8ZRGbk-jMghw/edit?usp=sharing

Provide a link to the final, signed, and executed MOU.

<https://goo.gl/NpB1Xb> and <https://goo.gl/7WUKzd>

Provide a link to the academy's master schedules.

<https://goo.gl/8qrwAu> and <https://goo.gl/fUzsFj>

Provide a link to the academy's Student IGPs with CCRS and Performance Acknowledgement Plans.

<https://goo.gl/2ovpDz>

Provide a link to the academy's written admission policy and enrollment application.

<https://goo.gl/VQURKv> and <https://goo.gl/forms/ngwTykMhXRKtLjJ72>

Provide a link to the academy's written recruitment plan including a timeline of recruitment and enrollment events, and recruitment materials for distribution at feeder schools and other appropriate locations in the community

<https://goo.gl/SiddhN> and <https://www.humbleisd.net/tstem> and <https://goo.gl/7AjyHU>

Provide a link to the academy's description of instruction practices.

<https://goo.gl/YaZzfP>

Provide a link to the academy's STEM-focused extracurricular activities.

<https://goo.gl/Kdda1F>

Provide a link to the academy's internship and externship opportunities.

<https://docs.google.com/document/d/1dTxFrP0F3FDJjKRTS1oaLj85NbpAsd7UwYICeEoVv5U/edit?usp=sharing>

Provide a link to the academy's Senior Capstone Project description.

<http://www.texasccrm.org/sites/default/files/6-10-13,t-stem.capstone.project.handbook.final.pdf>

Provide a link to the academy's Student Portfolio Plans.

<https://goo.gl/jUnpA7>

Provide a link to the academy's Academic Literacy Plan.

<https://goo.gl/gzNgQk> and <https://goo.gl/YNUogx>

Provide a link to the academy's Assessment strategy.

<https://goo.gl/NXHpdY>

Free-Response

Describe how the Academy will recruit, support, and retain highly qualified teachers.

The HHS STEM Academy recruits and selects highly qualified faculty. The Academy seeks to recruit faculty that possess extensive STEM knowledge and are enthusiastic about PBL. In order to recruit high quality effective teachers, the Academy will attend job fairs around the state, collaborate with IHE, provide professional development, and offer stipends. Academy teachers receive specialized professional development over both STEM and increasing student engagement and relevance. Success for every student in the Academy is not just a goal, but an expectation.

The interview process for the faculty at the Academy is different than that of the rest of HHS and the district. Academy students are included on the interview panel. Applicants begin by producing a portfolio demonstrating usage of PBL or are able to demonstrate characteristics that support alternative methods of engaging teaching. Candidates undergo an intense interview only after they have created and presented a STEM lesson to the committee and create a STEM based lesson. Finally, the candidate moves to a traditional interview with members of the Academy Leadership Team.

The PD plan focuses on further developing a college preparatory curriculum with a STEM career focus while also developing a variety of modalities of teaching to engage students in learning for the 21st century. The Academy is developing a 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). The Academy is developing an authentic PLC by instituting job-embedded ongoing opportunities for professional growth. We support our teachers by providing intensive summer professional learning series including PBL, AVID, and team planning time. We also provide a common planning period for TSTEM Academy teachers each day.

The Academy is developing a plan that collaboratively builds 6th – 12th teacher and administrator expertise in developing, teaching, learning, and assessing STEM cross-content curriculum. The Academy provides for flexibility in instructional practices to promote creativity and innovation while maintaining accountability. The Academy provides a common planning time, within the structure of the school day. The staff will collaboratively evaluate the efficacy of the instruction, curriculum, and student results. A plan for new teachers induction includes orientation, acculturation, mentoring, professional development, and administrative support.

Teachers are matched with a mentor. This relationship is an important aspect of the new teacher support from the Academy. New teachers know researched-based instructional skills; positive and safe interactions with students, parents, and community; excellent classroom management; and ongoing professional development is the minimum expectation.

The Academy uses survey information, formal meetings, and informal anecdotal evidence to make sure that staff has a voice in choosing 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. The AAP includes a creative teacher incentive plan that provides an additional planning period and extra duty pay.

Describe the current STEM pathways available at the academy.

In Year One, all academy students take Introduction to Engineering. In their second year, students must choose one of three pathways available in which to remain for the next three years:

1. Engineering:

- Principles of Engineering
- Computer-integrated Manufacturing
- Practicum in STEM

2. Computer Science

- Computer Programming 1
- Computer Programming 2
- Practicum of Information Technology

3. Biotechnology

- Principles of Bioscience
- Biotechnology 1
- Practicum in STEM

All final year courses are a double-block practicum which will consist of a senior capstone project or an internship.

Describe how strategic alliances with industry partners and IHEs 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.

The HHS STEM Academy uses the Student Community Meetings to share information and communicate with students, parents, community, and business members. During the Student Community Meetings, the LT and staff of the Academy take time to meet with parents and students to share and discuss the expectations and opportunities at the Academy. Several companies have been chosen to help serve and support the efforts of the students and staff of the Academy. Specifically, construction, medical, and technological companies are being asked to be partners. Currently, the business and community partners are pairing up with Academy to provide mentoring opportunities, internships, and other methods to learn about real world applications. At this time, there is only minimal financial support from business and community partners.

The Academy is partnering with Lone Star College and acquired the appropriate MOU. The MOU agreement ensures collaborative meeting and data sharing to help monitor student success and make real-time adjustments as needed.

Parent/family partnerships will increase as our academy grows. We have parental involvement on field experiences and at our parent informational meetings. We also have parents who will start a Booster club and increase involvement and possible fund-raising activities.

We communicate with all stakeholders via our webpage, a dedicated group in Schoology, emails, face to face scheduled meetings, and by phone.

Describe the Academy's work-based and contextual learning in the curriculum.

In our academy, we strive to make learning project-based and/or work-based in order to give it real world, relevant context. For example, launching projects begins with an industry expert coming to introduce the context of each project. We have had a nurse, an architect, a construction manager, engineers, and a financial adviser come in to give students real-world context for various project they have been assigned. At the end of projects, students have presented their learning and projects to a panel of school and business personnel.

As our academy matures and grows, adding upper grade levels, students will be able to visit work sites and interact more with industry experts to gain experience in the workplace.

Describe the STEM-focused extracurricular activities (field experiences, clubs, and competitions) offered to students.

Extracurricular and field experiences are an important part of our TSTEM Academy. We ended the 16-17 school year in May with a combined, overnight trip to NASA which included many of our incoming 9th graders. We participate in NASA at Night STEM programming, and toured NASA and the National Buoyancy Lab the next morning before departing.

As the 17-18 school year began, we had a series of field experiences:

October:

Ten80 STEM Fest

Texas A&M University Chemistry Fair

November:

University of Houston College Tour

February:

Lamar University College Tour

Houston Museum of Natural Science Energy Tour of Weiss Energy Hall & "Dream Big" 3D IMAX film about Engineers

Power Women in Industry Conference (for girls only)

March:

Houston Ship Channel Tour (upper grades only)

May:

Offshore Technology Conference (OTC) 2018

Kemah Boardwalk (Physics and roller coasters)

Our students are also participating in Robotics Club, UIL Academic team, and have begun a Graphic Art/Anime Club.

Next year, we will begin a TAME club (Texas Alliance for Minorities in Engineering) and focus on more women in STEM activities.