Maricopa Institute of Technology will blend a rigorous direct instruction model in Science, Technology, Engineering, and Mathematics (STEM) curriculum program with an online curriculum to students who will need to be globally competitive. MIT will ensure that its curriculum and instruction are designed so that each student receives individual attention to meet their personal goals. MIT will incorporate communication skills, innovation, critical thinking, problem solving, and collaboration skills consistent with successful post-secondary interactions and workplace expectations. Additionally, MIT students will be enrolled in Pre-Advanced Placement, Advanced Placement, and Dual Enrollment courses in 9th – 12th grade.

A. Core Content Curriculum and Alignment to Educational Philosophy and Common Core Standards

The goal of the Maricopa Institute of Technology's (MIT) School Curriculum and Instructional Support is to help all students reach their learning potential. Teachers and leaders will focus on creating curriculum, instruction, and assessments that are rigorous, integrated, and aligned to Arizona College and Career Readiness Standards and International Standards. MIT features class integration, with a heavy focus on Science, Technology, Engineering, and Mathematics. English Language Arts will be emphasized in all STEM areas as well as online courses. All classes will incorporate communication skills, innovation, critical thinking, problem solving, and collaboration to master reading and writing skills to ensure that students are academically prepared for college and career success. Students must pass end-of- course assessments to receive credit for all classes.

English Language Arts

The English Language Arts curriculum at MIT will expect mastery of academically rigorous reading and writing skills to ensure that students are prepared for success in college and a STEM career. The teacher created English Language Arts curriculum 9th through 12th grades will be literature-based to build mastery of the requirements for Advanced Placement (AP) English Language and Composition exam, and the Arizona College and Career Readiness Standards. The AP English Language and Composition exams are rigorous and leading indicators of college readiness and success. MIT students will take AP exams upon completion of the AP course.

Critical thinking and self-expression are emphasized in the study of vocabulary, grammar, usage, the fundamental elements of the expository (analytical) essay and narrative writing. Literature and writing will focus on themes of knowledge, responsibility, and the power of individual choice and the connection of humanities within the STEM model. MIT students will have received skills important to work in literary and STEM study, such as: analytic reading of academic prose, situate oneself in a critical conversation, create a logically coherent claim, ability to develop a coherent and sustained argument using evidence, careful reading of primary, secondary, and tertiary textual evidence, summarize the main claims of an academic essay, formulate a distinct critical perspective, present well organized arguments, and adherence to research skills.

Science (Pre-AP/AP)

Science courses will provide maximum opportunity to sharpen the analytical and mathematical skills of students through exploratory, problem based courses. Daily activities include discussions, labs, small group problem solving and working in Science Journals. The Advanced Placement Science courses are

college-preparatory courses intended to provide students with the content-knowledge and skills necessary for performing Science-related research.

The science curriculums will align to the Arizona State Standards, International, and Next Generation Science Standards. The 9th through 12th grade science curriculum will align to the requirements of AP courses, including biology, chemistry, physics. Science will be taught through an exploratory, problem-based course with a focus on laboratory skills.

A special emphasis in Science curriculum will be purposeful in the alignment with the Technology curriculum, as the two courses will be taught in a combined block.

Mathematics (Pre-AP/AP)

Each math course is laying the foundation for further mathematical study. Students will develop their ability to analyze, reason, communicate their ideas effectively to formulate, solve, and interpret solutions to mathematical problems in a variety of situations. The courses will have a focus on real-world, complex problems and their solutions.

The mathematics curriculum will be a combination of teacher created-materials and the backwards alignment to the AP Calculus exam. MIT students will be required to take the AP Calculus exam upon completion of the AP Calculus course. At MIT, there is a strong focus on mathematics curriculum in all STEM courses. The Arizona College and Career Readiness Standards, and the requirements of AP Calculus will be evident in the math curriculum maps.

There is a strong emphasis on applied problems and an emphasis on the integration of math in the engineering curriculum, as the two courses will be taught in a combined block.

Social Studies Online Courses

Social Studies available online---AP World History, AP United States History, AP U. S. Government, AP Economics

All Social Studies content will be taught through the FuelEd Online Courses which are aligned to the Arizona College and Career Ready Standards. The program features a multimedia format with whiteboard illustrations, practice games, and videos to keep students engaged and motivated to learn. Interactive tutorials will help illustrate complex concepts. Students taking the online AP Social Studies will be required to take the AP exams upon completion of the AP courses.

This model provides students with additional practice in reading and writing skills and designed to lead to an advanced understanding of various topics. This online course will be blocked with the English Language Arts class. All online classes are scheduled to be taken on campus under the supervision of an instructor. Students who do not have internet and/or computer access at home will be provided with a laptop and computer access by the MIT Technology Department to be functioning at 100%.

World Language Online Courses-- Mandarin Chinese, Hindi, Spanish

To prepare for college and career, MIT students will use the online FuelEd (Middlebury Interactive Languages for K-12th grades) program to take two years of a foreign language. Students in 9th -12th grade

will have the option of choosing Spanish, French, German, Latin, Mandarin Chinese, or Japanese. The online program will be facilitated by teachers who are highly qualified in the foreign language. Middlebury courses are aligned with national standards set by the American Council on the Teaching of Foreign Languages (ACTFL). All online classes are scheduled to be taken on campus under the supervision of an instructor. Students who do not have internet and/or computer access at home will be provided with a laptop and computer access by the MIT Technology Department to be functioning at 100%.

B. Methods of Instruction

Maricopa Institute of Technology will have courses and curriculum maps, assessments and professional development systems developed before the school begins in July of 2016. MIT teachers will implement curriculum maps by developing lesson plans that break down learning into steps and modeled during direct Instruction. Lessons will be followed by guided practice, and support until students master the material. MIT staff will follow the Response to Intervention (RTI) model designed to promote success for all learners. RTI will be facilitated with blended learning and in-classroom research-based instructional best practices to maximize student achievement and success.

Various Blended Learning Models and Digital Literacy

According to the International Association for K-12 Learning, the nation's largest provider of full-time virtual elementary and secondary education, 48 states had established a significant form of online learning initiative as of 2012 (Hertog, 2013).

MIT will combine an online or digital content component with regular face-to-face classroom instruction. The instructional approach and learning spaces are being configured to take advantage of the benefits of combining digital content and instructional management software with face-to-face teacher and student collaboration. MIT will implement a variation of the following three models:

The Flex Model is a program in which the online learning is the support and additional instruction for student learning. Teachers will customize courses to differentiate instruction and improve student outcomes. MIT teachers and support staff will provide face-to-face support through whole group and small-group instruction, group projects, and individual tutoring. The students will also be directed to online activities to intensify the level of instruction. All progress and assessment results are scored and kept to view with online learning activities and tracked through the Personalized Learning Platform (PEAK). Students can also access homework assignments and view their academic progress by logging on to the internet.

The Rotation Model will be used for digital content created by the teacher or FuelEd courses. Students will rotate to various learning stations that include differentiated levels of instructional materials and an online station for review or accelerated coursework. The school-wide adoption of incorporating digital content into the curriculum are offered daily. Teachers will use this model to support the direct instruction, guided learning, independent research, frequent progress monitoring, homework and formative assessments to gauge student achievement.

The A La Carte Model is a program in which students can take additional online courses. We will offer Social Studies courses, electives, and world languages in this model. The online courses will also incorporate interdisciplinary work and grade level independent projects to maintain a rigorous college ready environment where students will be formulating and solving problems, evaluating and

incorporating reference material appropriately, developing a logical and coherent argument or explanation, interpreting data or conflicting points of view, collaborating, and completing their assignments and projects with precision and accuracy.

MIT believes that digital literacy is an essential skill for MIT students. Students will be exposed to different types of technology in the classroom and in Technology and Engineering Lab experiences.

Personalized Education Plans

Personalized education plans provide Maricopa Institute of Technology staff with comprehensive information on student progress. Students, parents, teachers and administrators will work together for student success. By using the learning management platform we will have shared knowledge of student's challenges and can develop consistency in addressing instructional needs for all students. By collaborating, we can be consistent and comprehensive in our school-wide approach to personalize for each and every student. The FuelED Anywhere Learning System (ALS) framework contains four fundamental components: prescribe, instruct, assess, and report.

1. Prescribe: A personalized curriculum plan for each student is generated to address skill gaps.
2. Instruct: Content is presented through a research-based model of carefully sequenced direct-instruction aids using study guides, quizzes, mastery tests, and essays.
3. Assess: Pre-tests and adaptive assessments identify each student's strengths and deficiencies, all correlated to Arizona College and Career Readiness and national standards.
4. Report: FuelED provides teachers and administrator with technology platform with tools that track and analyze all aspects of individual students and class performance, in order to benchmark progress and refine curriculum plans.

The PEAK Library is a Personalized Learning Platform that provides a view of online and blended learning activities for students. The assessments in PEAK show how students are performing and exactly where they are struggling so teachers can target content to individual students or small groups.

Goals for mastery are determined to be 80% by the Board for in class formative assessments and can be adjusted if needed. Robert Marzano defines formative assessment as feedback provided through learning experiences (Marzano, 2003). He also indicates that academic achievement in classes where effective feedback is provided to students is considerably higher than the achievement in classes where feedback is not provided.

Student grades and test data will be tracked and available for students and parents through the school's PEAK Learning Platform accessed through the school's website. Teachers will monitor student progress and contact parents of students who are missing assignments and doing poorly on assessments. Teachers and students will use assessments to adjust teaching and provide students with re-teaching or accelerated learning opportunities. Teachers will contact parents via e-mail or phone calls to work with parents to schedule tutoring sessions before, during, or after school until missing assignments and concepts are mastered.

Teachers will notify administration if parents cannot be contacted. Administrators will then schedule meetings with students and parents to determine student needs. This process holds administration, students and parents accountable to stay on track with their personalized education plan.

Response to Intervention (RTI) Model

RTI is designed to improve the achievement of all students. MIT will use this model to structure classroom instruction because we believe that with proper motivation and support, all students will achieve academic success. The model is a multi-tiered approach that uses high-quality, research-based instructional techniques to foster learning and limit learning difficulties (Whitten, E., Esteves, K., Woodrow, A., (2009).

To address Tier 1: MIT will develop universal screening for all students, teachers will develop high-quality classroom instruction using research-based instructional strategies, implement differentiation and interventions to address skill deficits, monitor student progress and personalize instruction. Students who need additional assistance move to Tier II.

Tier 2: MIT teachers will provide focused supplemental instruction in small groups, using digital online FuelEd Curriculum--PEAK Library materials for online resources such as Khan Academy, Britannica School, and You Tube Education to engage visual learners with videos for short supplemental lessons aligned to key standards. Teacher can create their own materials for student review or tutoring. These interventions will be targeted and the teacher will continue to differentiate and monitor student progress. Students who respond to the intervention move back to Tier 1 and students who need additional assistance move to Tier 3.

Tier 3: Students not responding to Tier 1 and 2 instruction will be provided with intensive, individualized intervention. These interventions are specifically designed to be personalized, with frequent progress monitoring and diagnostic evaluation to determine any needed changes in instruction. Students who do not respond through Tier 3 interventions will be referred to the Headmaster to collaborate and review the need for Special Education or English Language services.

Advisory and Character Counts

Advisory Program will be used to advise students about academic decisions and monitor academic achievement, to undertake community service both within the school and outside the school, and to promote character development. The MIT staff will organize the program to fulfill the purpose of the program and to ensure personalization. The content will be organized around essential themes and skills. A common curriculum will be developed. The Advisory will be assessed by individual students, the MIT staff and the school and program leadership.

Research Based Instructional Best Practices

Research-based teaching methods and curriculum resources will be used throughout the RTI Tiers. Teachers will receive training in the following research-based instructional methods, strategies, and programs to support the RTI model across grade levels and subject areas.

Standards-Based Instruction

Maricopa Institute of Technology teachers will provide students with learning goals that are specific and challenging. Research by Marzano (2000) suggests that establishing academic goals that are challenging for all students are important factors in effective schooling. MIT administration and staff will implement curriculum and ensure the content is delivered through administrative and teacher walkthroughs and weekly monitoring of student academic achievement. Feedback from colleagues and administration are provided to the teacher through a walk-through protocol instrument following an

informal observation. Administration will provide student achievement data, informal, and formal feedback to teachers, as a fundamental measure of teacher effectiveness.

Problem-Based Learning
MIT will implement problem based learning in Science, Technology, Engineering, and STEM elective courses. STEM Labs are exploratory, thematic, interdisciplinary instructional blocks organized around career clusters and STEM college pathways. These courses combine rigorous academics and "real world" application of learning. Initial programs will focus on Science, Technology, Engineering and Math (STEM) career pathways to prepare students for postsecondary work in the STEM fields. The 9th through 12th Grade English class integrates and investigates a wide range of themes and research that supports the 9th through 12th grade STEM Labs. Community partnerships have been and will continue to be developed to help students and families meet the challenges to improve student attendance, behavior and academic outcomes.

Differentiation strategies
Personalizing instruction based on student skills keeps the classroom focused on delivering instruction that works for all students. MIT teachers will address student needs in a large group, small group, and in individual structures. Additional resources are available online in the PEAK library to customize and create lessons that include inquiry-based learning, media files and practice exercises. Through FuelEd content partners, teachers can incorporate encyclopedia articles, charts, and maps to remediate or enrich learning.

Cooperative Learning Structures
The primary reason to group students is to differentiate instruction to meet the different learning needs of students and increase academic achievement. Cooperative learning allows you to personalize instruction. Spencer Kagan suggests that 21st Century education is supported by analyzing the embedded curriculum delivered through his cooperative learning structures. Kagan's cooperative learning structures are designed to deliver content by using thinking skills, character virtues, social skills, leadership skills and teamwork skills ---the very skills students need if they are to be successful in the fast-changing, interdependent world of the future (Kagan, 2011).

Alignment and Implementation of Instruction

Maricopa Institute of Technology staff will collaborate to align research based instructional methodologies, Arizona College and Career Ready Standards, curriculum, and student needs. The implementation of research based instructional practices through professional development and action research will be supported and monitored by administration. Adjustments will be made based on the results of peer observations, administration observation, and student outcomes.

Internships, Seminars, and Workshops

Awareness of STEM related career fields are emphasized as part of the MIT workshop and seminar program. MIT will expand opportunities through college partnerships, technology and engineering internships, to create learning experiences and a competitive advantage in preparing for and accessing postsecondary opportunities.

C. Summative Assessment Plans

Maricopa Institute of Technology will establish a school-wide system of academic assessment that is research-based and driven by *Data Driven Differentiation in the Standards-Based Classroom* (Gregory, G., Kuzmich, L.). Teachers will use performance assessments, end of unit, and end of course assessments to measure student mastery of content.

Performance or authentic assessments will require MIT students to demonstrate their learning by creating a product or by solving a task, performance, or exhibition to show what they know and can achieve. These authentic assessments mirror what happens in the real world. MIT will implement problem based learning in Science, Technology, Engineering, and STEM elective courses. STEM Labs are exploratory, thematic, interdisciplinary instructional blocks organized around career clusters and STEM college pathways. In project-based learning, projects will be assessed thru rubrics that define quality of work or proficiency.

Quarterly Common Assessments

Maricopa Institute of Technology will implement quarterly assessments, to test the content and rigor, for each course taught. The quarterly assessments will be used to assess the pacing of the curriculum maps, academic interventions for students, as well as the instructional strategies used by the teacher.

Project based assessments will be assessed thru rubrics that define quality work or proficiency according to various categories (Lucas, 2015). These assessments will require MIT students to demonstrate their learning by making a product or by completing a task, performance, or exhibition to show what they know and can do.

Usage of Summative Assessment Data

Summative Assessment data from all assessments will be used at the end of the year to look at student growth and address instructional, and curricular needs. Summative assessments are identified as pre and post assessments for every course, AP exams at the end of an AP course, AZ MERIT end of course testing, and PSAT, ACT, SAT used to determine college readiness. The benchmark assessments are used to show longitudinal growth and will be given three times during the year—August, November, and April. The benchmark is aligned to the Arizona College and Career Ready Standards and will be used to assess the MIT Academic Program.

D. Alignment of Program of Instruction and Academic Systems Plan

The Program of Instruction is consistent with the Academic Systems Plan.

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