Syllabus

I. General Course Information
Course Code: 05377
Course Title: Pathways Capstone S1
Department: Career & Technical Education (CTE)

School Level: High School
Grade Level: 11, 12
Primary Credit Type: Elective
Prerequisites: Successful completion of level 2 courses in Robotics, Software Engineering, Web Design, or 3D-Animation in the Center for Communication Technology Magnet.
Duration: 2 Semesters
Credits per Duration: 5
Maximum Duration: 2 Semesters
Grading: DPS Standard

II. Course Description
The Pathways course is a capstone for students in the robotics, software engineering, web design, or 3D animation strand of the Center for Communication Technology Magnet. The course has the following focus areas:

- A senior project that is designed and produced by students either individually or as part of a project team. The senior project should exhibit outstanding work in an area of technology that the student finds interesting and desires to pursue further.
- A project planning notebook to document the planning process involved with the senior project. The notebook will demonstrate understanding of the 5 process groups and 9 knowledge areas used by the Project Management Institute.
- Post-secondary planning, including time to work with the Future Center on college applications and scholarship applications.
- A senior web-portfolio for students to exhibit their best work in the CCT Magnet. Senior portfolio's will be on-line for several years after graduation.

III. Course Outline
Course content will include, but is not limited to:
Overall Learning Outcomes
To develop advanced skills in:
- Technology foundations
- Project management and documentation
- Personal development
- Entrepreneurism/Professional Networking

General Concepts and Software
- Word processing using Word

- Excel for cost/time calculations
- Inspiration for idea organization
- Graphic design tools
- Software/web/3D development tools as needed
- Student blog using Wordpress
- Other tools as needed

Specific Learning Outcomes
- Understand and apply the 5 process groups of PMI project management.
- Understand and apply the 9 knowledge areas of PMI project management.
- Design and build a senior technology project.
- Develop and implement a post-high school plan.
- Create and update a web-portfolio of exemplary CCT Magnet work.
- Demonstrate community/school leadership.

Assignments and Evaluation of Student Performance
- Submit a senior technology project and PMI Project Planning Notebook as entry to the "High School Project of the Year" for the Mile High Chapter of PMI.
- Research post-secondary options and develop a post-graduation plan. Tasks include:
  - Career research
  - College research
  - College applications
  - Scholarship applications
  - Resume
- Develop and update a web-portfolio showcasing outstanding work from CCT Magnet career.
- Develop and implement a community service project focused on middle schoolers.

IV. Standards and Assessments Coding

CTE Content Standard
ITCO**.06** Know and understand the importance of IT project management concepts, tools and techniques and the role teams play in the IT field.
  ITCO**.06.01** Explain the definition of a project and the tools required to establish the project.
    ITCO**.06.01.a** Define a project as it relates to the IT field.
    ITCO**.06.01.b** Explain the project plan and its components.
    ITCO**.06.01.c** Demonstrate the knowledge of project planning methodologies and tools.
ITIM**.02** Understand and demonstrate the use of software and hardware for digital communication production, development and project management.
  ITIM**.02.01** Demonstrate the ability to work with appropriate software tools.
    ITIM**.02.01.a** Demonstrate proficiency in the use of digital imaging tools, digital video techniques, and equipment. (i.e. bitmapped image editing, vector based editing, layers, channels, masks, etc).
    ITIM**.02.01.b** Demonstrate knowledge of available graphics, video, motion graphics, web software programs.
    ITIM**.02.01.c** Demonstrate knowledge of available project management and collaborative tools.

ITIM**.02.01.d** Demonstrate knowledge of integrated development environments (such as Visual Studio, Dreamweaver, Flash, Waterproof, etc.)

STCO.06.03.a Demonstrate the design process by defining a problem, brainstorming, researching and generating ideas, identifying criteria and specifying constraints, and exploring possibilities.

STCO.07.03.b Demonstrate the ability to collaborate and work effectively with others.

Postsecondary & Workforce Readiness and Essential Skills

ESSK**.02** Communications: Use oral and written communication skills in creating, expressing, and interpreting information and ideas including technical terminology and information.

ESSK**.02.01** Select and employ appropriate reading and communication strategies to learn and use technical concepts and vocabulary in practice.

ESSK**.02.05** Use correct grammar, punctuation, and terminology to write and edit documents.

ESSK**.02.05.a** Compose multi-paragraph documents clearly, succinctly, and accurately.

ESSK**.02.01.f** Communicate information, data, and observations to apply information learned from reading to actual practice.

ESSK**.02.05.c** Use correct grammar, spelling, punctuation, and capitalization when preparing written documents.

Academic Alignment with Math, Science, Reading, Writing and Communication (CCSS, CAS)

RWC10-GR.10-S.1-GLE.1-EO.e Use feedback to evaluate and revise the presentation.

ARVD.05.08.a (ID) Express ideas clearly in visual, oral, and written communication.

RWC10-GR.10-S.2-GLE.3-EO.c Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

COJB.04.01.a Demonstrate control of grammar, diction, sentence and paragraph structure, punctuation, capitalization, spelling, and correct English usage.

RWC10-GR.11-S.3-GLE.3-EO.d Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (CCSS: W.11-12.5)

ITPR.05.02.c Update documentation in internal code and external support media.

RWC10-GR.11-S.4-GLE.2-EO.a Analyze the logic of complex situations by questioning the purpose, question at issue, information, points of view, implications and consquences, inferences, assumptions and concepts.

ITPR.01.01.a Gather information using interviewing and questioning techniques and strategies.

ITPR.01.02.a Analyze information from users.

RWC10-GR.12-S.3-GLE.2-EO.c Address audience needs and anticipate audience questions or misunderstandings.

ITIM.01.02.b Determine the target audience requirements (such as web accessibility).

RWC10-GR.12-S.3-GLE.2-EO.d Select and build context for language appropriate to content (technical, formal).

ITIM.01.02.a Prepare functional and visual design specifications for a project. (ie storyboards, flowcharts, user interface, navigational schema, etc).

RWC10-GR.9-S.4-GLE.2-EO.a Analyze the purpose, question at issue, information, points of view, implications and consequences, inferences, assumptions and concepts inherent in thinking.

ITCO.02.01.b Identify the facts and requirements within a problem.

ITCO.02.02.a Test/evaluate the solution.

STCO.01.04.a Demonstrate the ability to characterize a plan and identify the necessary tools that will produce a technical solution when give a problem statement.

STCO.06.03.a Demonstrate the design process by defining a problem, brainstorming, researching and generating ideas, identifying criteria and specifying constraints, and exploring possibilities.

RWC10-GR.9-S.4-GLE.2-EO.c Implement a purposeful and articulated process to solve a problem.

ITCO.02.01.d Create a solution for the problem.

ITIM.01.01.c Integrate needs and assessments into a unique solution to the project design.

STCO.01.04.a Demonstrate the ability to characterize a plan and identify the necessary tools that will produce a technical solution when given a problem statement.

V. Additional Course Information
Fees: Set by the school
Materials: Set by the school
Textbooks: Set by the school
Resources: Teacher website at www.fornstrom.tjcomputermagnet.com

VI. Final Notes
Students are eligible to compete in the "High School Project of the Year" competition sponsored by the Project Management Institute. Winners are eligible to apply for college scholarships given by the Institute.