Describe STEM career pathway requirements and numbers of completers. **[40 pts]**

Concordia fosters an inclusive STEM environment where all students are encouraged—but not required: to explore STEM fields through courses, hands-on projects, and extracurricular activities.
Opportunities for Students
• Coursework: Students can take AP STEM courses such as Calculus, Physics, Biology, Chemistry, and Computer Science, as well as Applied Learning classes that emphasize real-world engineering, coding, and research.
• Experiential Learning: Projects like drone design, sustainability initiatives, VR-enhanced lessons, and robotics allow students to apply classroom knowledge to practical challenges.
• Extracurriculars & Competitions: Students participate in VEX Robotics, drone competitions, and citizen science projects, with opportunities to compete locally and internationally.
• Research & Mentorship: Independent research is supported through mentorships and access to advanced lab facilities.
Program Impact
STEM concepts are integrated across the curriculum, helping students develop confidence and curiosity regardless of their academic focus. Concordia's Class of 2025 earned university admissions in diverse STEM majors, and more than 80% of AP Scholars took STEM-related AP courses. Students consistently achieved high AP scores in math and science and engaged widely in STEM-related projects and activities. Concordia's approach ensures all students can explore STEM pathways and build the skills needed for a technology-driven future.

2. School participate and/or organized a STEM outreach or community service project.

Describe STEM outreach or community service project. **[30 pts]**

Concordia's high school club Shining Star brought STEM outreach to Shangxi Village, a rural community in Guangzhou, in October 2025. Students led two days of workshops for grades 3–6, teaching basic aerodynamics and physics through hands-on activities like building balsa planes, parachutes, and bottle rockets. The focus was on problem-solving and teamwork rather than complex science. They also led Social-Emotional Learning activities—marshmallow tower challenges, relay games, and simple English practice—to build confidence and collaboration. The trip strengthened relationships with local students, and the club plans to return with new activities.

Separately, members of the Envision Education club continued their effort to refurbish used computers for underserved schools. To support this initiative, students designed and sold laser-cut ornaments at the Christmas Bazaar on November 22nd, raising funds to help establish computer labs in remote communities.

Upload photo(s) of STEM outreach or community service project. **[10 pts]**

5 photos max.

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3. Two or more teachers/administrators collaborated on an integrative STEM project.

List teachers' names and subject areas, and describe collaborative, integrative STEM project, focusing on the integrative nature of the teaching and learning. **[30 pts]**

Teachers and Subject Areas

•

Collaborative, Integrative STEM Project

These teachers created a fully interdisciplinary STEM project where students applied calculus, physics, engineering, computer science, and entrepreneurship in connected, real-world challenges. Students used modeling, coding, physical principles, and design thinking across all tasks.

Project outcomes included:

• Gradient Descent Model integrating calculus and computer science
• Coffee Bean Cooling Machine combining physics, engineering, CAD, and business analysis
• Solar-Powered Desalination System uniting thermodynamics, fluid dynamics, calculus, sustainability, and engineering design

Upload photo(s) of collaborative, integrative STEM project. **[10 pts]**

5 photos max.

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4. School hosted and/or sponsored a family-oriented STEM event.

Describe family-oriented STEM event. **[30 pts]**

Our family-oriented STEM outreach event brought students and families together to create and sell laser-cut stencils designed in class. The project strengthened design and engineering skills while raising funds for the Shining Stars initiative, which supports STEM education for rural students in China.
Concordia also runs a K–12 VEX robotics program integrated into both curriculum and extracurriculars. At the December 2025 ECA Showcase, elementary students in grades 1–5 participated in a VEX GO competition, demonstrating creativity, problem-solving, and collaboration. The event highlighted the strong future of robotics in the ES program.
Looking ahead, Concordia will host the ACAMIS National VEX Robotics Finals in February 2026, welcoming teams from international schools across China and determining qualifiers for the VEX Robotics World Championship.

Upload photo(s) of family-oriented STEM event. **[10 pts]**

5 photos max.

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5. School hosted and/or sponsored a STEM Career Fair or similar event for students.

Describe STEM Career Fair or a similar event. **[30 pts]**

Each year, Concordia hosts the Concordia World University Fair (CWUF), giving high school students and parents in Shanghai the chance to speak directly with representatives from top global universities. This year's fair, held on October 12th, brought together institutions from more than 10 countries and regions. Students interested in STEM fields were able to meet with admissions officers from schools such as the Rochester Institute of Technology and the Hong Kong University of Science and Technology.

In November 2025, Concordia was honored to welcome Dr. Po-Shen Loh, a Carnegie Mellon University math professor and former coach of the U.S. International Math Olympiad team. Known for his energetic teaching and innovative approach to making advanced mathematics accessible, Dr. Loh led a series of engaging sessions with our teachers and high school students.

During his discussion with Middle and High School math teachers, Dr. Loh explored the true purpose of teaching mathematics. He emphasized that math is fundamentally about thinking, not memorizing formulas. He highlighted the distinction between "knowledge" and "intelligence"—the ability to apply knowledge and approach problems from new perspectives.

Later, Dr. Loh led a two-hour session with high school students, diving into the beauty of mathematical logic, reflecting on the impact of AI, and offering meaningful career insights—an experience students found both inspiring and all too brief.

Upload photo(s) of STEM Career Fair or similar event. **[10 pts]**

5 photos max.

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Teacher(s)/administrator(s) presented a STEM-related session at the 2025 ITEEA Annual Conference in St. Louis, MO or a similar National or International Conference. Provide conference title, date of presentation, presentation title, and name(s) of presenter(s). **[20 pts]**

1. attended the conference at ITEEA St. Louis, but his presenting partner did not attend so they had to cancel it.

2. National Conference in Minneapolis, November 12-15, 2025

Virtual Worlds, Real Empathy: A Practical Guide to Teaching Water Issues with VR

Teacher(s)/administrator(s) participated in the STEM Showcase at the 2025 ITEEA Annual Conference in St. Louis, MO. Provide name(s) of presenter(s) and title of presentation. **[20 pts]**

1. , Concordia Shanghai STEM School of Excellence and 2. , Fujiwara, Building Engineers from the Ground Up

Teacher(s)/administrator(s) presented a session at the ITEEA 2025 Fall Forum or at a similar virtual event. Provide presentation title and name(s) of presenter(s). **[20 pts]**

Recalibrating STEM+ in the Era of AI, AI in Action: The Future of K-12 Education Conference in Chongqing China.

Teacher(s)/administrator(s) published an article or manuscript in a peer-reviewed journal in the past three years. Provide complete citation, article URL, or other publication identifier. **[20 pts]**

Building Engineering from the Ground Up: A Scaffolded Design Process for PreK-12 Learners
https://www.iteea.org/file/secure/teemay25.pdf
Early Childhood Robotics - Igniting Innovation and Computational Thinking
https://www.iteea.org/file/secure/may-24-tee-final.pdf
Virtual Reality to Enhance STEM Learning https://www.iteea.org/file/secure/nov-23-tee-final.pdf

School news or event was publicized on ITEEA's News webpage or in ITEEA's *STEM Connections* newsletter. Provide date and title of post and description of publicized news or event. **[20 pts]**

STEM School of Excellence awardees announced, Concordia, https://www.iteea.org/stem-school-of-excellence

School had an active Career and Technical Student Organizations (CTSO) chapter, e.g., Technology Student Association (TSA) or Skills USA. Provide CTSO name, chapter advisor name, and chapter number (or another identifier). **[20 pts]**

none at this time

Students participated in a Career and Technical Student Organization (CTSO), e.g., Technology Student Association (TSA) or Skills USA, competition or event. Provide CTSO name, chapter advisor name, and name and date of competition or event. **[20 pts]**

We hosted the regional VEX China Central VEX competition 24-25 at Concordia

School had an active honor society chapter, e.g., National STEM Honor Society (NSTEM). Provide honor society organization, chapter advisor name and chapter number. **[20 pts]**

Concordia has established a branch of the Science National Honor Society within its community. Details are as follows:

Organization: Science National Honor Society (SNHS)

Chapter Advisor Name:

Chapter Number: 61041097

Teacher(s) participated in an ITEEA STEM CTL™ professional learning byDesign event e.g. virtual workshop, microbadge, asynchronous training, or summer workshop. Provide teacher name and date and title of event. **[20 pts]**

sadly no.

School adopted safety protocols – a standard operating procedure for the STEM lab that may include a safety manual, safety rules, HAZMAT sheets, procedures should an accident occur – for your STEM classroom or lab and post it in your classroom and/or on your school's website. Upload a copy of your safety protocol document(s). **[20 pts]**

Makerspace Use...

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School offered at least one Engineering byDesign™ (EbD) course. List teacher's name(s) and course(s) taught. **[20 pts]**

not this year maybe in the future. We do have similar courses.

Describe how your Technology, Engineering, and STEM curriculum addresses each of the eight Standards from ITEEA's *Standards of Technological and Engineering Literacy (STEL)*. [10 pts each]

a. The Nature and Characteristics of Technology and Engineering

Concordia's STEM program highlights technology and engineering as real-world problem-solving processes. Students design and prototype items using tools like TinkerCAD and Fusion 360, learning the full design cycle through testing and revision. They also explore how scientists, technologists, and engineers play different but interconnected roles for example, mapping these roles during a VR project on global water challenges.

b. Core Concepts of Technology and Engineering

Core engineering principles at Concordia are taught through hands-on, systems-focused projects. In VEX Robotics, students integrate motors, sensors, and algorithms to build robots for tasks like navigation, refining designs through performance analysis. In fabrication projects, they select materials based on durability, flexibility, and sustainability—for example, comparing PLA and ABS to meet specific design needs.

c. Integration of Knowledge, Technologies, and Practices

Concordia integrates STEM through interdisciplinary projects that blend technical skills with global awareness. For example, seventh graders used virtual reality to explore real regions facing water scarcity. After researching drought-affected communities, they built VR environments in CoSpaces to depict local challenges, fostering empathy and encouraging students to consider sustainable solutions.

d. Impacts of Technology

Concordia's design curriculum emphasizes creativity, iteration, and human-centered problem-solving. Students use CAD tools to prototype and refine 3D-printed designs, adjusting models to meet real fabrication constraints. Human-centered projects further extend this work—for example, a student developing a low-cost, lightweight knee exoskeleton for TKA rehabilitation. The project focuses on at-home accessibility and evaluates performance metrics like range of motion, torque, and safety to compare the design with existing devices.

e. Influence of Society of Technological Development

At Concordia, middle school students participated in Virtual Quest for Water Wisdom, an interdisciplinary project that used virtual reality to explore global water scarcity and the social issues connected to it. Students investigated communities facing limited or contaminated water sources, then designed their own water-filtration concepts using tools like TinkerCAD, considering cost and sustainability. They also researched existing technologies such as solar stills and portable desalination systems, seeing how engineering and innovation respond to real human needs.

f. History of Technology

At Concordia, the history of technology is a core framework for understanding STEM, helping students see modern tools as part of a long continuum of human innovation. Lessons often begin with historical case studies—such as aqueducts, early pumps, telegraphs, or early computers—so students can compare past and present solutions and understand how constraints and materials have evolved.

Students build timelines, study artifacts and patents, and learn about diverse engineers and inventors to recognize that technological progress is collaborative and cumulative. This historical lens is woven into current projects as well; for example, in the VR global water unit, students study historical water systems before designing modern or future-focused solutions. Across units, they also examine the social and ethical impacts of past technologies, preparing them to think critically about the innovations they create today.

g. Design in Technology and Engineering

Fabrication Units Sequence Topics (these topics are repeated in 6th and 7th at different levels of proficiency and readiness)
Design using TinkerCAD, Blender, or Fusion 360.
Learning the basics of 3D printing.
Learning the basics of laser cutting.
Design a product.

h. Applying, Maintaining, and Assessing Technological Products and Systems

Concordia students build strong practical skills for operating, maintaining, and evaluating technological systems. In 3D printing, they write Fabrication Reports that document issues like warping or failed prints and redesign their models accordingly—for example, adjusting overhangs to reduce material use. In robotics, students program closed-loop systems, troubleshoot sensors and algorithms, and refine navigation performance. Drone projects teach them to assemble, diagnose, and optimize components such as motors and payload systems. Students also conduct performance analyses on technologies like photovoltaic panels, collecting data to assess efficiency and propose improvements.

School has active ITEEA Group School Membership and/or at least one teacher/administrator has an active individual ITEEA Professional membership at the time of application. For group school membership, provide the school's name and for individual memberships, provide member name(s). **[20 pts]**

Video Submission

Develop and submit a video that showcases your school as a STEM School of Excellence candidate. Sample videos are available on the STEM School or Excellence webpage and may include: interviews with your Principal, Teacher, and/or Students discussing your program; showcase of projects from school; and/or a recording from a STEM event you hosted. **[30 pts]**

2025 Concordia ...

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Pay Application Fee *

Prior to submission, you must request an invoice for or pay the STEM School of Excellence application fee (ITEEA members: $195.00; Non-ITEEA members: $295.00).

Enter your 4-digit order number below.