

# **Job Description: Middle School & High School Computer Science, Engineering Design, and Design Technology Teacher**

**Department:** Secondary School (Middle School and High School)

**Reports To:** Secondary School Principal

## **Job Purpose**

The Middle School & High School Computer Science, Engineering Design, and Design Technology Teacher at Schutz American School is a facilitator of innovation, computational thinking, problem-solving, and design. The teacher develops students' understanding of computer science, engineering principles, design processes, and emerging technologies through inquiry-based, project-based, and hands-on learning experiences.

The teacher possesses strong knowledge of computer programming, engineering design, digital technologies, and makerspace practices. Instruction emphasizes the development of computational thinking, creativity, collaboration, critical thinking, and ethical technology use. Students are guided through authentic design challenges and engineering projects that encourage innovation and real-world problem solving.

The teacher uses research-based instructional strategies, including inquiry-based learning, design thinking, differentiation, and personalized learning, to meet the diverse needs of learners. Learning experiences are responsive to students' readiness levels, interests, and learning profiles, ensuring all students are appropriately challenged and supported.

The successful candidate will teach Middle School and High School Computer Science and Design Technology courses, including AP Computer Science Principles (AP CSP), while preparing students for success in an increasingly technology-driven world.

## **Reporting Relationships**

**Reports to:** Secondary School Principal

**Liaises with:** Professional Learning Community (PLC), Student Support Team, Technology Department, Academic Coordinators, Parents, and External Partners where appropriate

## **Duties and Essential Job Functions**

## **Instructional Planning and Delivery**

- Design and deliver engaging courses in Computer Science, Engineering Design, Design Technology, and AP Computer Science Principles.
- Teach computer programming with a strong emphasis on **Python**, while incorporating **Java**, **Visual Basic**, and other appropriate programming languages and technologies.
- Develop students' understanding of computational thinking, algorithms, data structures, programming logic, data representation, and software development.
- Teach topics including coding, web technologies, cybersecurity, artificial intelligence, robotics, engineering design, product development, prototyping, and emerging technologies.
- Facilitate inquiry-based and project-based learning experiences that connect technology to authentic real-world challenges.
- Guide students through the engineering design cycle, including research, ideation, prototyping, testing, evaluation, and refinement.
- Prepare students for success in AP Computer Science Principles, including support for the Create Performance Task and AP assessment requirements.
- Integrate design thinking methodologies to foster innovation, creativity, and user-centered problem solving.
- Utilize makerspace tools and technologies including 3D printing, robotics systems, digital fabrication tools, electronics, and prototyping equipment.
- Collaborate with colleagues to develop interdisciplinary learning experiences and STEM initiatives.
- Use standards-based planning and student data to inform instruction and personalize learning pathways.

## **Classroom Environment**

- Create a positive, inclusive, and student-centered learning environment that encourages curiosity, innovation, and experimentation.
- Foster student agency by encouraging goal-setting, reflection, risk-taking, and ownership of learning.

- Establish clear expectations and routines that support both independent and collaborative project work.
- Promote responsible, ethical, and safe use of technology and digital resources.
- Encourage resilience and iterative problem-solving as essential components of the design and engineering process.

### **Assessment and Feedback**

- Use a variety of formative and summative assessments to monitor student learning and skill development.
- Assess student understanding through projects, design portfolios, coding assignments, presentations, prototypes, and performance-based tasks.
- Use assessment data to guide instruction and provide targeted support and enrichment.
- Provide timely, specific feedback that promotes student growth and reflection.
- Support students in tracking their progress and setting goals for continuous improvement.

### **Student Support**

- Differentiate instruction to meet the needs of diverse learners and varying levels of technical experience.
- Collaborate with the Student Support Team to ensure inclusive practices and appropriate accommodations.
- Provide targeted intervention and enrichment opportunities based on individual student needs and interests.
- Encourage students to pursue independent projects, competitions, innovation challenges, and technology-related opportunities.

### **Professional Collaboration and Development**

- Actively participate in the Professional Learning Community (PLC) and contribute to instructional improvement initiatives.

- Collaborate with colleagues to design innovative learning experiences and integrate technology across disciplines.
- Engage in ongoing professional learning related to computer science education, engineering design, design technology, makerspaces, artificial intelligence, and emerging technologies.
- Contribute to school-wide initiatives that support STEM, innovation, and personalized learning.

## **Parent and Community Engagement**

- Maintain clear and professional communication with parents regarding student progress, goals, and achievement.
- Support parents in understanding students' development in computer science, engineering, and design thinking.
- Promote student learning through exhibitions, showcases, competitions, and community engagement opportunities.

## **Technology Integration**

- Integrate technology purposefully to enhance teaching and learning.
- Maintain proficiency with current programming languages, software tools, educational technologies, and emerging digital platforms.
- Utilize learning management systems and digital assessment tools to support instruction and communication.

## **Additional Responsibilities**

- Supervise students during school hours, including transitions, activities, and school events.
- Participate in school activities such as field trips, innovation fairs, STEM competitions, and technology showcases.
- Maintain accurate and organized records of student progress and achievement.
- Support the continued development and maintenance of makerspace facilities, equipment, and resources.

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## Qualifications Required

- Bachelor's Degree in Computer Science, Computer Engineering, Software Engineering, Information Technology, Design Technology, Engineering, Education, or a related field.
- Valid teaching certification.
- Minimum of 5 years of teaching experience in Computer Science, Engineering, Design Technology, or a related field.
- Demonstrated proficiency in **Python programming**.
- Experience teaching coding, computational thinking, and project-based learning.

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## Preferred Qualifications

- Master's Degree in Education, Computer Science, Engineering, Educational Technology, or a related field.
  - Experience teaching **AP Computer Science Principles (AP CSP)** or comparable advanced secondary computer science courses.
  - Experience with **Java, Visual Basic**, web development, robotics, artificial intelligence, and cybersecurity.
  - Experience implementing personalized learning approaches.
  - Experience teaching in an international school setting.
  - Familiarity with inquiry-based learning, design thinking, and concept-based curriculum design.
  - Experience with makerspaces, digital fabrication, 3D printing, robotics, and prototyping technologies.
  - Knowledge of emerging technologies and their application in education.
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