The ever-increasing influence of industrial sectors makes the acquisition of technological competences a key element for the success of the next generation of students. However, despite efforts to reform education, much of the current teaching system continues to prepare students for the future, using methods from the past. Current educational curricula often lack opportunities to provide interdependencies between individual areas of engineering. Trainees are often unable to establish connections between them. By providing an appropriate and approachable entry point the versatile field could be made more accessible to aspiring engineers. In this thesis, the mechatronic design of a robotic system as an approach to reinforce educational access to constructing and designing robots is presented. For this purpose, a prototype of a parallel kinematic machine, a DELTA robot, is being developed. The system integrates knowledge from mechanics, electrical engineering and computer science. To allow a modular structure, the entity is realized via ''smart'' drives. The robot can thus be dynamically changed upon request to be customized to specific tasks. The drives facilitate the development, as the robot can be modulated quickly and inexpensively. In addition, the modular hardware in combination with open source software does not require any specialized industrial equipment or research establishments to impart practice-oriented content and research opportunities. As a result, through the interaction of these advantages, a prototype can be manufactured in an intrinsically safe, portable and cost-effective manner to give prospective engineers the unique opportunity of studying parallel kinematic machines in a practical way.