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A Collaborative Learning Model in Engineering Science Based on a Cyber-Physical Production Line

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Abstract : The Cyber-Physical Systems terminology has been well received by the industrial community and specifically appropriated in educational settings. Indeed, our latest educational activities are based on the development of experimental platforms on an industrial scale. In fact, we built a collaborative learning model because of an international market study that led us to place ourselves at the heart of this technology. To align with these findings, a competency-based approach study was conducted, and program content was revised by reflecting the projectbased approach. Thus, this article deals with the development of educational devices according to a generated curriculum and specific educational activities while respecting the repository of skills adopted from what constitutes the educational cyber-physical production systems and the laboratories that are compliant and adapted to them. The implementation of these platforms was systematically carried out in the school's workshops spaces. The objective has been twofold, both research and teaching for the students in mechatronics and logistics of the electromechanical department. We act as trainers and industrial experts to involve students in the implementation of possible extension systems around multidisciplinary projects and reconnect with industrial projects for better professional integration.

Keywords : education 4.0, competency-based learning, teaching factory, project-based learning, cyber-physical systems, industry 4.0
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