

# Investigating and promoting Learning opportunities through Emerging and Immersive Technologies



By: Dewey University, Award #P116S220005

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8/11/2023

Areas to explore regarding the integration of Interactive Simulations to enhanced academic offerings of Dewey University as part of their improvement under grant #P116S220005 [Modeling and Simulation Program](#) are:

Academic program	Practical examples to consider as part of the improvement of academic programs at Dewey University	References
<a href="#">Master of Science in Nursing with Specialty in Anesthesia</a>	<p>This academic program focuses on the preparation of specialized nurses in the area of anesthesiology. Advanced simulation technologies will be integrated to provide students with hands-on experience in administering anesthesia in different settings. The simulators allow students to practice and perfectionate their skills in making critical decisions and managing emergency situations. This ensures that future professionals are prepared to confidently and confidently face the complexities of their field of expertise.</p>	<p>COACRNA (2020, January 1). <i>The Value of Simulation in Nurse Anesthesia Education</i>. <a href="https://www.Coacrna.org">https://www.Coacrna.org</a>. Retrieved August 7, 2023, from <a href="https://www.coacrna.org/wp-content/uploads/2020/01/COA-Response-Regarding-the-Use-of-Simulation.pdf">https://www.coacrna.org/wp-content/uploads/2020/01/COA-Response-Regarding-the-Use-of-Simulation.pdf</a></p> <p>Etanaa NB, Benwu KM, Gebremedhin HG, Desta HB. The effect of simulation-based training in non-physician anesthetists in Tigray region, Ethiopia. <i>BMC Res Notes</i>. 2020 Apr 1;13(1):197. doi: 10.1186/s13104-020-05041-1. PMID: 32238186; PMCID: PMC7110791. <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7110791/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7110791/</a></p>
<a href="#">Master Degree in Nursing Science with Specialty in Trauma and Emergency Room</a>	<p>In this program, simulation is used to train specialized nurses in the management of trauma situations and medical emergencies. Students interact with realistic trauma and emergency scenarios in virtual settings. This allows them to gain critical skills such as rapid triage, patient stabilization, and decision-making in high-pressure situations. Simulation in this specialization improves the rapid and effective response of future professionals in crisis situations.</p>	<p>Ilggen JS, Sherbino J, Cook DA. Technology-enhanced simulation in emergency medicine: a systematic review and meta-analysis. <i>Acad Emerg Med</i>. 2013 Feb;20(2):117-27. doi: 10.1111/acem.12076. PMID: 23406070. <a href="https://pubmed.ncbi.nlm.nih.gov/23406070/">https://pubmed.ncbi.nlm.nih.gov/23406070/</a></p> <p>Ilggen, J. S., Sherbino, J., &amp; Cook, D. A. (2013). Technology-enhanced simulation in emergency medicine: a systematic review and meta-analysis. <i>Academic emergency medicine : official journal of the Society for Academic Emergency Medicine</i>, 20(2), 117–127. <a href="https://doi.org/10.1111/acem.12076">https://doi.org/10.1111/acem.12076</a></p>
<a href="#">Master of Science in Nursing with Specialty in Critical Care</a>	<p>This academic program uses simulations to prepare specialized nurses in the care of critical patients. Students work in simulated environments that replicate intensive care units and highly complex situations. This allows them to practice real-time decision making, multidisciplinary team management,</p>	<p>Jansson M, Kaariainen M, Kyngas H. Effectiveness of simulation-based education in critical care nurses' continuing education: a systematic review. 2013. In: <i>Database of Abstracts of Reviews of Effects (DARE): Quality-assessed Reviews</i></p>

	and critical patient care. Simulation in this specialization enhances leadership skills and the ability to address complex medical situations.	[Internet]. York (UK): Centre for Reviews and Dissemination (UK); 1995-. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK159852/">https://www.ncbi.nlm.nih.gov/books/NBK159852/</a>  Guerrero, J. G., Tungpalan-Castro, G. M., & Pingue-Raguini, M. (2022). Impact of simulation debriefing structure on knowledge and skill acquisition for postgraduate critical care nursing students: three-phase vs. multiphase. <i>BMC Nursing</i> , 21(1), 1–9. <a href="https://doi.org/10.1186/s12912-022-01100-z">https://doi.org/10.1186/s12912-022-01100-z</a>
<a href="#"><u>Master of Science in Nursing with Specialty in Mental Health and Psychiatry</u></a>	In this program, simulations are used to train nurses in the care of patients with mental and psychiatric disorders. Students interact with virtual patients in scenarios that replicate various clinical situations. This allows them to develop skills in mental health assessment, intervention and crisis management. Simulation in this specialization promotes empathy and understanding of the specific needs of patients with mental disorders.	Piot, M., Dechartres, A., Attoe, C., Romeo, M., Jollant, F., Billon, G., Cross, S., Lemogne, C., Layat Burn, C., Michelet, D., Guerrier, G., Tesniere, A., Rethans, J., & Falissard, B. (2022). Effectiveness of simulation in psychiatry for nursing students, nurses and nurse practitioners: A systematic review and meta-analysis. <i>Journal of Advanced Nursing (John Wiley &amp; Sons, Inc.)</i> , 78(2), 332–347. <a href="https://doi.org/10.1111/jan.14986">https://doi.org/10.1111/jan.14986</a>
<a href="#"><u>Master of Science in Nursing with Specialty in Oncology</u></a>	In this academic program, simulations are used to train specialized nurses in the care of cancer patients. Students interact with virtual patients presenting with different types and stages of cancer. This allows them to develop skills in symptom management, emotional support, and follow-up on cancer treatments. Simulation in this specialization prepares future professionals to provide comprehensive and humanized care to cancer patients.	Ren, Y., Yang, Y., Chen, J., Zhou, Y., Li, J., Xia, R., Yang, Y., Wang, Q., & Su, X. (2022). A scoping review of deep learning in cancer nursing combined with augmented reality: The era of intelligent nursing is coming. <i>Asia-Pacific Journal of Oncology Nursing</i> , 9(12), 100135. <a href="https://www.sciencedirect.com/science/article/pii/S2347562522001937">https://www.sciencedirect.com/science/article/pii/S2347562522001937</a>
<a href="#"><u>Bachelor in Preschool Education</u></a>	Simulations are used to train future preschool teachers. Students interact with virtual situations that replicate common scenarios in the preschool classroom. This allows them to acquire skills in planning activities, class management and attention to the individual needs of children. Simulation in this baccalaureate improves the preparation of future teachers to create enriching and stimulating educational environments for young children.	Mukhtar, M.A., Hasim, Z., & Md Yunus, M. (2018). The efficacy of simulated teaching in preparing pre-service teachers for practicum. <i>Journal of Nusantara Studies</i> , 3(1), 64-74. <a href="https://www.researchgate.net/publication/326018953_THE_EFFICACY_OF_SIMULATED_TEACHING_IN_PREPARING_PRE-SERVICE_TEACHERS_FOR_PRACTICUM">https://www.researchgate.net/publication/326018953_THE_EFFICACY_OF_SIMULATED_TEACHING_IN_PREPARING_PRE-SERVICE_TEACHERS_FOR_PRACTICUM</a>
<a href="#"><u>Bachelor in Nursing Sciences</u></a>	In this program, simulations are used to strengthen the training of general nurses. Students interact with virtual scenarios that simulate clinical situations and common challenges in the field of nursing. This allows them to develop skills in direct patient care, clinical decision making, and medical case	Cant, R. P., & Cooper, S. J. (2010). Simulation-based learning in nurse education: systematic review. <i>Journal of advanced nursing</i> , 66(1), 3–15. <a href="https://doi.org/10.1111/j.1365-2648.2009.05240.x">https://doi.org/10.1111/j.1365-2648.2009.05240.x</a>

	<p>management. The simulation in this degree improves the confidence and competence of future professionals in the field of health.</p>	<p>Davies, H., Sundin, D., Robinson, S., &amp; Jacob, E. (2021). Does participation in extended immersive ward-based simulation improve the preparedness of undergraduate bachelor's degree nursing students to be ready for clinical practice as a registered nurse? An integrative literature review. <i>Journal of Clinical Nursing</i> (John Wiley &amp; Sons, Inc.), 30(19/20), 2897–2911.  <a href="https://doi.org/10.1111/jocn.15796">https://doi.org/10.1111/jocn.15796</a></p>
<p><a href="#"><u>Bachelor in Information Sciences with concentration in Programming</u></a></p>	<p>Simulations are used in this academic program to enhance student learning in the field of computer programming. Students work on mock projects that simulate development and problem solving in the area of programming. This allows them to apply their theoretical knowledge in practical settings and face challenges similar to those they will encounter in the world of work. Simulation in this high school promotes creativity and problem solving skills.</p>	<p>Pasalidou, C., &amp; Fachantidis, N. (2022, May). Contextualizing Educational Robotics Programming with Augmented Reality. In <i>2022 8th International Conference of the Immersive Learning Research Network (iLRN)</i> (pp. 1-5). IEEE.</p> <p>Kim, J., Agarwal, S., Marotta, K., Li, S., Leo, J., &amp; Chau, D. H. (2019, June). Mixed reality for learning programming. In <i>Proceedings of the 18th ACM International Conference on Interaction Design and Children</i> (pp. 574-579).</p>
<p><a href="#"><u>Bachelor in Office Systems</u></a></p>	<p>In this program the simulations allow students to be trained in the efficient management of office tasks and the use of office software and tools. Students interact with virtual situations that replicate real work scenarios in an office. This allows them to develop skills in organizing documents, planning meetings, and managing business communication. Simulation in this baccalaureate improves the efficiency and effectiveness of future professionals in the administrative field</p>	<p>Prabowo, S. H. W., Murdiono, A., Martha, J. A., Zutiasari, I., &amp; Hashim, N. M. H. N. (2021, November). Design and Build Role Play Game Application-Business Simulator (Simbiz-Rpg) as a Life-Based Business Learning Media. In <i>BISTIC Business Innovation Sustainability and Technology International Conference (BISTIC 2021)</i> (pp. 219-224). Atlantis Press.</p> <p>Faisal, N., Chadhar, M., Stranieri, A., &amp; Gorris-Hunter, A. (2023). Effects of Business Simulation Games on IS students' Resilience: Instructors' Perspectives.</p>
<p><a href="#"><u>Bachelor in Accounting</u></a></p>	<p>In this academic program, the use of simulations allows training future accountants in the financial and accounting management of companies. Students work with virtual cases that simulate complex accounting situations and financial decision making. This allows them to develop skills in financial analysis, auditing and accounting reporting. The simulation in this degree promotes accuracy and professional ethics in accounting.</p>	<p>Carenysa, Jordi; Moya, Soledad; Perramon, Jordi  Is it worth it to consider videogames in accounting education? A comparison of a simulation and a videogame in attributes, motivation and learning outcomes  <i>Revista de Contabilidad</i>, vol. 20, núm. 2, 2017, pp. 118-130  <a href="https://www.redalyc.org/pdf/3597/359752056002.pdf">https://www.redalyc.org/pdf/3597/359752056002.pdf</a></p>

		Calabor, M. S., Mora, A., & Moya, S. (2019). The future of serious games in accounting education: A Delphi study. <i>Journal of Accounting Education</i> , 46, 43-52.
<a href="#"><u>Bachelor in Business Administration with a Concentration in Finance</u></a>	In this program the integration of simulations to train future professionals in making strategic financial decisions and managing economic resources. Students interact with virtual situations that simulate complex financial scenarios and investment planning. This allows them to develop skills in financial analysis, risk management and projection of economic results. Simulation in this baccalaureate improves the ability of future professionals to face the financial challenges of the business world.	<p>Chulkov, D., Wang, X (2020). The Educational Value of Simulation as a Teaching Strategy in a Finance Course. <i>e-Journal of Business Education &amp; Scholarship of Teaching</i> Vol. 14, No. 1, June 2020, pp: 40-56.  <a href="https://files.eric.ed.gov/fulltext/EJ1276442.pdf">https://files.eric.ed.gov/fulltext/EJ1276442.pdf</a></p> <p>Zulfiqar, S., Sarwar, B., Aziz, S., Ejaz Chandia, K., &amp; Khan, M. K. (2019). An analysis of influence of business simulation games on business school students' attitude and intention toward entrepreneurial activities. <i>Journal of Educational Computing Research</i>, 57(1), 106-130.</p> <p>Salamzadeh, A., Tajpour, M., &amp; Hosseini, E. (2022). Measuring the impact of simulation-based teaching on entrepreneurial skills of the MBA/DBA students. In <i>Technology and Entrepreneurship Education: Adopting Creative Digital Approaches to Learning and Teaching</i> (pp. 77-104). Cham: Springer International Publishing.</p>
<a href="#"><u>Bachelor in Information Sciences with concentration in Computer Graphics and Digital Media</u></a>	In this academic program, simulations are used to develop students' creative and technical skills in the design and creation of computer graphics and digital media. Students work on simulated projects that replicate real graphic design and production situations. This allows them to gain hands-on experience using design software and tools, as well as creating multimedia projects. Simulation in this baccalaureate encourages innovation and creativity in the field of digital media.	Sookpatdhe, T., & Soranastaporn, S. (2016). Simulation and project based learning for developing creativity: From classroom to real life. <i>ThaiSim Journal: Learning Development (TSJLD)</i> , 1(1), 85-105.
<a href="#"><u>Bachelor in Computer Specialist</u></a>	In this program, the integration of simulations allows training students in the area of technical support and resolution of computer problems. Students interact with virtual situations that simulate common challenges in maintaining and troubleshooting computer systems. This allows them to develop skills in fault identification and correction, as well as in technical assistance to users. The simulation	Jordan Allison. 2022. Simulation-Based Learning via Cisco Packet Tracer to Enhance the Teaching of Computer Networks. In <i>Proceedings of the 27th ACM Conference on on Innovation and Technology in Computer Science Education Vol. 1 (ITiCSE '22)</i> . Association for Computing



	<p>in this baccalaureate improves the ability of future professionals to provide an efficient and effective technical service.</p>	<p>Machinery, New York, NY, USA, 68–74.  <a href="https://doi.org/10.1145/3502718.3524739">https://doi.org/10.1145/3502718.3524739</a></p> <p>J. Janitor, F. Jakab and K. Kniewald, "Visual Learning Tools for Teaching/Learning Computer Networks: Cisco Networking Academy and Packet Tracer," <i>2010 Sixth International Conference on Networking and Services</i>, Cancun, Mexico, 2010, pp. 351-355, doi: 10.1109/ICNS.2010.55.</p>
<p><a href="#"><u>Bachelor in Electromechanical Systems Technology</u></a></p>	<p>In this program, the integration of simulations allows training students in the design, maintenance and operation of electromechanical systems. Students work on mock projects that simulate the operation of electrical, computer, and mechanical systems in industrial settings. This allows them to develop skills in analyzing and solving problems in complex systems. Simulation in this baccalaureate fosters excellence in the field of electromechanical technology.</p>	<p>Tvenge, N., Ogorodnyk, O., Østbø, N. P., &amp; Martinsen, K. (2020). Added value of a virtual approach to simulation-based learning in a manufacturing learning factory. <i>Procedia CIRP</i>, 88, 36-41.</p>
<p><a href="#"><u>Associate Degree in Preschool Education</u></a></p>	<p>In this program, the integration of simulations allows training future preschool education teachers. Students interact with virtual scenarios that replicate common situations in a preschool classroom. This allows them to acquire skills in planning and carrying out educational activities, as well as in the attention and care of young children. The simulation in this program improves the preparation of future attendees to provide a safe and stimulating educational environment for children.</p>	<p>Luke, S. E., Ford, D., Vaughn, M., &amp; Fulchini-Scruggs, A. (2021). Using mixed reality simulation and roleplay to develop preservice teachers' metacognitive awareness. <i>Journal of Technology and Teacher Education</i>, 29(3), 389-413.</p>
<p><a href="#"><u>Associate Degree in Information Sciences in Computers</u></a></p>	<p>In this program the integration of simulations allows to strengthen the learning of the students in the area of informatics and computation. Students work on mock projects that simulate developing and solving computer problems. This allows them to apply their theoretical knowledge in practical settings and face challenges similar to those they will encounter in the world of work. The simulation in this program promotes the acquisition of technical and problem-solving skills.</p>	<p>Simulation-Based Learning via Cisco Packet Tracer to Enhance the Teaching of Computer Networks. ITiCSE '22: Proceedings of the 27th ACM Conference on on Innovation and Technology in Computer Science Education Vol. 1 July 2022 Pages 68–74  <a href="https://doi.org/10.1145/3502718.3524739">https://doi.org/10.1145/3502718.3524739</a></p> <p>J. Janitor, F. Jakab and K. Kniewald, "Visual Learning Tools for Teaching/Learning Computer Networks: Cisco Networking Academy and Packet Tracer," <i>2010 Sixth International Conference on Networking and Services</i>, Cancun, Mexico, 2010, pp. 351-355, doi: 10.1109/ICNS.2010.55.</p>

		<a href="https://ieeexplore.ieee.org/abstract/document/5460623">https://ieeexplore.ieee.org/abstract/document/5460623</a>
<a href="#"><u>Associate Degree in Billing and Medical Coding</u></a>	In this program, the integration of simulations allows training future specialists in billing and medical coding. Students interact with virtual cases that simulate billing and coding processes in medical settings. This allows them to develop skills in interpreting medical records, assigning codes, and submitting claims accurately and efficiently. The simulation in this program improves the precision and accuracy in the handling of medical information.	Ghosheh, G., Li, J., & Zhu, T. (2022). A review of Generative Adversarial Networks for Electronic Health Records: applications, evaluation measures and data sources. <i>arXiv preprint arXiv:2203.07018</i> .
<a href="#"><u>Associate Degree in Nursing Sciences</u></a>	In this program, the integration of simulations allows strengthening the training of nursing assistants. Students interact with virtual scenarios that simulate clinical situations and common procedures in the field of nursing. This allows them to develop skills in direct patient care, taking vital signs and assisting in medical procedures. The simulation in this program improves the confidence and preparation of future professionals in the health area.	Plotzky, C., Lindwedel, U., Sorber, M., Loessl, B., König, P., Kunze, C., ... & Meng, M. (2021). Virtual reality simulations in nurse education: A systematic mapping review. <i>Nurse education today</i> , 101, 104868.  Hsieh, P. Y., Lin, H. Y., Chang, C. H., Chang, Y. C., Cheng, H. P., Wang, C. Y., ... & Hsiao, F. H. (2021). Effects of situational simulation and online first-aid training programs for nurses in general medical wards: a prospective study. <i>Nurse Education Today</i> , 96, 104621.
<a href="#"><u>Associate Degree in Accounting</u></a>	In this program, the integration of simulations allows training of future accounting assistants in the financial and accounting management of companies. Students work with virtual cases that simulate accounting situations and the preparation of financial records. This allows them to develop skills in handling financial transactions, reconciling accounts, and preparing basic accounting reports. The simulation in this program promotes precision and accuracy in the management of financial information.	Calabor, M. S., Mora, A., & Moya, S. (2019). The future of serious games' in accounting education: A Delphi study. <i>Journal of Accounting Education</i> , 46, 43-52.
<a href="#"><u>Associate Degree in Agribusiness</u></a>	In this program the integration of simulations are used to simulate the management of agricultural and commercial operations. This allows them to develop skills in crop planning, inventory management and the marketing of agricultural products. The simulation in this program enhances the ability of future professionals to address the challenges of the agricultural sector.	Bylkova, S., & Chubova, E. (2020). Role-playing models in the vocational education of future agribusiness experts. In <i>E3S Web of Conferences</i> (Vol. 175, p. 15016). EDP Sciences.  Campos, N., Nogal, M., Caliz, C., & Juan, A. A. (2020). Simulation-based education involving online and on-campus models in different European Universities. <i>International Journal of Educational Technology in Higher Education</i> , 17(1). <a href="https://doi.org/10.1186/s41239-020-">https://doi.org/10.1186/s41239-020-</a>

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<a href="#"><u>Associate Degree in Pharmacy Technician</u></a>	In the case of the Associate Degree in Pharmacy Technician, simulations are used to train future technicians in the field of pharmacy. Students participate in virtual scenarios that replicate pharmaceutical and patient care situations. This allows them to develop skills in accurate medication dispensing, understanding drug interactions, and effective communication with patients and healthcare professionals. The incorporation of simulations in this program improves the preparation of future technicians to provide quality and safety pharmaceutical services.	Rude, T. A., Eukel, H. N., Ahmed-Sarwar, N., Burke, E. S., Anderson, A. N., Riskin, J., & Caldas, L. M. (2023). An introductory over-the-counter simulation for first-year pharmacy students using a virtual pharmacy. <i>American Journal of Pharmaceutical Education</i> , 87(2).
<a href="#"><u>Associate Degree in Physical Therapy</u></a>	In this program, the integration of simulations allows training future assistants in the field of physical therapy. Students interact with virtual scenarios that simulate clinical and therapeutic situations. This allows them to develop skills in patient assessment, implementation of therapeutic exercises, and treatment follow-up. The simulation in this program improves the preparation of future assistants to provide quality physical therapy.	Hough, J., Levan, D., Steele, M. et al. Simulation-based education improves student self-efficacy in physiotherapy assessment and management of pediatric patients. <i>BMC Med Educ</i> 19, 463 (2019). <a href="https://doi.org/10.1186/s12909-019-1894-2">https://doi.org/10.1186/s12909-019-1894-2</a>  Mori, B., Carnahan, H., & Herold, J. (2015). Use of Simulation Learning Experiences in Physical Therapy Entry-to-Practice Curricula: A Systematic Review. <i>Physiotherapy Canada</i> . <i>Physiotherapie Canada</i> , 67(2), 194–202. <a href="https://doi.org/10.3138/ptc.2014-40E">https://doi.org/10.3138/ptc.2014-40E</a>
<a href="#"><u>Associate Degree in Office Systems</u></a>	In this program, the integration of simulations allows students to be trained in the efficient management of office tasks and the use of office software and tools. Students interact with virtual situations that replicate real work scenarios in an office. This allows them to develop skills in document organization, meeting planning, and business communication management. The simulation in this program improves efficiency and effectiveness in the administrative field.	Developing Leadership Skills Through Simulation-Based Training: A Research Framework and Interpretive Case Study. <i>Journal Management International / International Management / Gestión Internacional</i>  Volume 26, Number 1, 2022, p. 192–208 URL <a href="https://id.erudit.org/iderudit/1088443arCopiedAn error has occurred DOI">https://id.erudit.org/iderudit/1088443arCopiedAn error has occurred DOI</a> <a href="https://doi.org/10.7202/1088443arCopiedAn error has occurred">https://doi.org/10.7202/1088443arCopiedAn error has occurred</a>
<a href="#"><u>Diploma in Refrigeration and air conditioning</u></a>	In this program, the integration of simulations allows training technicians in the field of refrigeration and air conditioning. Students interact with virtual scenarios that simulate the design, installation, and maintenance of refrigeration and air conditioning systems. This allows them to develop skills in technical troubleshooting, troubleshooting, and equipment adjustment. The simulation in this	Wati, E. K., & Widiensyah, N. (2020). Design of learning media: modeling & simulation of building thermal comfort optimization system in building physics course. <i>Jurnal Pendidikan IPA Indonesia</i> , 9(2), 257-266.  Beverly, R (2021). Virtual Reality



	<p>diploma improves the ability of future technicians to offer quality services in the area of refrigeration and air conditioning.</p>	<p>and Hybrid Learning Guide HVAC Technicians Toward Real Skill Sets.  <a href="https://www.achrnews.com/articles/144308-virtual-reality-and-hybrid-learning-guide-hvac-technicians-toward-real-skill-sets">https://www.achrnews.com/articles/144308-virtual-reality-and-hybrid-learning-guide-hvac-technicians-toward-real-skill-sets</a></p> <p>Haoran Sun, Guoliang Ding, Haitao Hu, Tao Ren, Guanghui Xia, Guoming Wu,  A general simulation model for variable refrigerant flow multi-split air conditioning system based on graph theory,  International Journal of Refrigeration,  Volume 82,  2017,  Pages 22-35,  ISSN 0140-7007,  <a href="https://doi.org/10.1016/j.ijrefrig.2017.07.003">https://doi.org/10.1016/j.ijrefrig.2017.07.003</a>.</p>
<p><a href="#"><u>Diploma in Electricity and Photovoltaic Systems</u></a></p>	<p>In this academic program, simulations allow students to be trained in the field of electricity and photovoltaic systems. Students work on mock projects that simulate the installation and maintenance of electrical and photovoltaic systems. This allows them to acquire skills in the design of electrical circuits, fault identification and the use of photovoltaic technology. The simulation in this diploma encourages the acquisition of practical knowledge in the area of electricity and solar energy.</p>	<p>Jorge Felipe Gaviria, Gabriel Narváez, Camilo Guillen, Luis Felipe Giraldo, Michael Bressan,  Machine learning in photovoltaic systems: A review,  Renewable Energy,  Volume 196,  2022,  Pages 298-318,  ISSN 0960-1481,  <a href="https://doi.org/10.1016/j.renene.2022.06.105">https://doi.org/10.1016/j.renene.2022.06.105</a>.</p> <p>Pratima Kumari, Durga Toshniwal,  Deep learning models for solar irradiance forecasting: A comprehensive review,  Journal of Cleaner Production,  Volume 318,  2021,  128566,  ISSN 0959-6526,  <a href="https://doi.org/10.1016/j.jclepro.2021.128566">https://doi.org/10.1016/j.jclepro.2021.128566</a>.</p>