

## **Updated syllabus for future NDT masters in France**

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Non-Destructive Testing (NDT) provides fertile ground for the integration of artificial intelligence (AI) into the training of specialists in this field. In many areas of activity, NDT is expanding to meet the growing needs of industry and society. This is particularly true in terms of the health and safety of structures, sustainable development, and issues related to energy transitions. Furthermore, Industry 4.0 is a major industrial challenge in which NDT will play a crucial role in meeting the desired quality requirements. Historically, France has been a leader in the field of NDT, thanks to its remarkable expertise in high-tech sectors such as nuclear energy, aerospace, and aviation, which have stimulated NDT practices and fostered their development. Today, it is necessary to combine materials science with modern tools, including AI for advanced and appropriate NDT practices. This may represent a step for the NDT profession towards belonging to STEM (Science, Technology, Engineering, and Mathematics), which encompasses the most important areas of emerging technologies. Regarding AI, the prospects for development are promising, with AI bringing significant improvements to existing techniques. Machine learning algorithms can be used for advanced analysis of NDT data, enabling more accurate and rapid detection of defects. Master's students in artificial intelligence can specialize in the development and optimization of these algorithms, as well as the integration of intelligent sensors for automated inspections in NDT. The ambition of French academic teachers and researchers in NDT is to develop a strong and emerging network ensuring a high level of skills with the aim of creating conditions for innovation and development by facilitating the transfer of technology from experimental platforms with innovative pilot lines. Furthermore, NDT programs must deliver excellent interdisciplinary education in fundamental sciences, including mathematics and physics for NDT. Increasing access to higher education related to NDT is one of the highest priority demands of the NDT community. French universities and institutes have proposed updated syllabus for innovative training master programs promoting the multi, inter, and transdisciplinarity of various engineering disciplines.