



9 citations per paper in 2019.

In 2019, NCTU offered 45 related courses.

Establishing a Research Center of Biochar for Environmental Applications – recyclable and reusable agricultural wastes

In 2018, NCTU signed a contract with University of Delaware (UD), United States, to establish the NCTU-UD Joint Research Center of Biochar for Environmental Applications (JRC-BEA). The research team used high-temperature tube furnaces and box furnaces to do pyrolysis carbonization on sewage sludge (e.g., wood, coconut shell fiber, rice husk, pinecones, and bagasse) obtained from different sewage treatment plants. Simultaneously, the research team mixed the sludge with agricultural wastes to produce biochar in order to improve the heating value and the strength of the sludge. In this way, the sludge can be recycled and reused as sewage disposal materials, fuel supplements or building materials. The bilateral exchange of research results can not only suit the actual needs of industries in Taiwan and the United States, but also provide the most feasible technical consultations and service. The research team strives for the future works of producing, applying, and promoting biochar with concerted efforts.



DIYGreen Technology – being self-sufficient in growing vegetables

In order to solve three major environmental problems in Taiwan, namely heat island effect, excessive recycled bottles and the low disposal rate of kitchen waste, Professor Jehng Jung Kao from the Institute of Environmental Engineering of NCTU led a research team to develop the very first new “DIYGreen roof” on the basis of recycled bottles, which is suitable for the environment of Taiwan. In addition to the advantages of traditional green roofs, such as good cooling and energy-saving performance, DIYGreen roof also solves problems like the need of waterproofing, bad heat dissipation at night and outflow of sewage. In order to promote the DIYGreen kit more effectively, the construction time of this kit is much shorter than the traditional ones so that children and even the elderly can build and maintain it by themselves. What’s more, the DIYGreen kit has great flexibility in expanding and low difficulty in maintaining. It is not limited to be installed on roofs or balconies; instead, it’s suitable for all flat surfaces. Thus, everyone can grow vegetables and fruits on their own roofs or balconies, which is the most environmentally friendly way of producing food with zero food miles.