

# Main Project Target

## Improve Teachers' Academic Knowledge of Nanotechnology Science Education

By constructing the Center of Nanotechnology Pedagogical Content Knowledge, we established the nanotechnology teaching method for the development of seeded teachers, and improve teachers' pedagogical knowledge and ability of nanotechnology by editing the teaching manual and developing the teaching material modules. Also we host several different activities, such as construct virtual platform, held Nano Festival, and teachers' workshop to built a real platform for teaching material design and experience sharing. By the social network form by the virtual platform "Nanotechnology teacher communing website", we can integrate and share the experience without the limit of time and places constrain. Via this platform, it can help the innovation and sharing of knowledge, promote the exchange of nanotechnology teaching method, and improve teacher's academic conservation of nanotechnology education.

## Promoting the Research of Nanotechnology Education, and Quality of Teaching Material

Promoting the basic research of the science education issue, such as setting the indicator of Nanotechnology and concept determination figure. Developing the students oriented courses map, courses indicator, teaching strategy and evaluation method in order to improve the quality of the Nanotechnology education. At the same time, in order to improve the quality of the exploration of nanotechnology teaching material, development of courses, courses evaluation, and to enhanced the scientific merit and practical use of the Nanotechnology courses, design a systemic, dynamic, and creative experience will be introduced into a large range of educational environments from elementary school to universities

## Developing the Future Nanotechnology Professions, Facilitate Industrial Upgrade

Through the research and realization of creative courses in elementary and junior high school, we use integrated hands-on research techniques nanotechnology classes, which allows students to learn the key competencies of nanotechnology from the early stage of their education. This will build a solid base for nanotechnology. Also, for undergraduate and graduate school students, we offer and design focused prospective nanotechnology core courses and relevant lab classes to educate more potential nanotechnology researchers. In response to the need from the relevant industries, it is essential to train nanotechnology core technical professions. Additionally, development and promotion of classes combining both nanotechnology and education professionals will facilitate the pre-service training for teachers in nanotechnology field.

## Constructing Learning Environment, developing citizens Nanotechnology Accomplishment

By the establishment of the Center of Nanotechnology Pedagogical Content Knowledge, we are able to repository the achievement of the nanotechnology education development result in our country, and provide reference resources for international scholar include teachers and researchers to serve as the teaching resources of nanotechnology education. On the same time, by holding the National Nanotechnology Creative Application Competitions and the achievement exhibition in Taiwan International Nano Week, we can expand the impacts of popular science education. By combining with the local community resource, several popular science events such as nanotechnology festivals will be organized to increase the learning opportunities of nanotechnology for public and students in remote areas. By using digital resource platform to construct a complete Nano internet college, we are able to balance the urban-rural gap and enhance the effects via information sharing to improve the overall "nanotechnology" key competencies in our country.

## Exploration of International Interaction and Enhancement of Taiwan's Academic Status

Through the participation of several international events such as Asian Nanotechnology Forum and International Nano Camp, we can learn the oversea experiences on promoting nanotechnology education, share our achievements in promoting nanotechnology education, create a platform for multilateral cooperation and interaction method and international resources exchange, and reach the target of revealing Taiwan nanotechnology education achievements. In the meantime, we continuously interact with Nanotechnology center for learning and teaching (NCLT) and Arizona State University (ASU) in the United States and other international institutes in Japan and Korea to develop the professionals with international perspective, share teaching resources, and nanotechnology database. All of above can help us elevate our international status in nanotechnology education.

## Enhancement of Integration and Performance Evaluation for Flexible Projects

By the plan of setting coordinating administrative operations of "Nanotechnology human resource development policy-oriented project", and the well establishment of the plan construction and direction by meeting and advisory committee, we can well-organized project control mechanisms. At the same time, we coordinate and integrate the flexible project resources for establish a research result and experiences sharing and exchanging platform, and systematize the result of flexible project according to different educational levels and promoting stages.