二、整體計畫中文摘要

（關鍵詞：資訊科技，半導體技術，科技整合教育，晶片設計，光機電系統）

配合晶圓製造與半導體製程技術的提昇，以及薄膜製程技術的精進、智慧型尖端材料的開發、微機電與光機電等周邊元件與支援性產業之蓬勃發展，實質上，「資訊科技」已經是一門橫跨工程與科學的整合性科技，它涵蓋電機、電子、資訊、材料、光電、機械、物理以及化學等知識領域。隨著資訊科技的進步，多媒體應用以及網際網路的普及，「資訊科技」的蓬勃發展已經徹底改變了人類生活方式與經濟發展模式。為因應廿一世紀資訊化社會來臨，「知識經濟」已成為未來經濟發展的方向，而高素質的資訊人才之培育尤為知識經濟中重要的一環。為了提升競爭力，確保我國資訊產業優勢，中興大學具有國立綜合性大學的師資、人力、空間等豐沛的資源，對本地區「資訊科技」產業之人才培養與技術支援責無旁貸，必須主動積極投入「資訊科技」領域高級人才的培養，因應國家進入廿一世紀的挑戰。

因此，本「資訊科技基礎教育」計畫，以「系統」、「設計」、「與「製程」等三大部分為規劃主軸，並細分為五個分項計畫，分別為：「資訊系統科技教育」、「通訊晶片設計科技教育」、「通訊類元件製程科技教育」、「資訊材料科技教育」及「光機電系統整合科技教育」。基本上，本「資訊科技基礎教育計畫」乃是運用本校在電機、電子、資訊、材料、機械、精密、光電等領域之設備與專業能力，作垂直及水平之整合，進行整合相關課程內容，改進教學方法，擴充實驗設備，以提昇教學品質，進一步培育最符合廿一世紀潮流的高級資訊科技人才，追求資訊科技教育卓越化，確保未來我國資訊科技產業的競爭優勢。
In conjunction with significant progresses in the wafer and silicon-based semi-conductor manufacturing processes, the thin film technologies, development of the intelligent materials, MEMS and opto-electro-mechanical system, the information technology is really a multiple-disiplined technology, including the professional knowledges of engineering and sciences. It includes electrics, electronics, information sciences, material, opto-electronics, mechanics, physics and chemistry. Information technology has advanced rapidly because the highly growing of the world-wide internet, the necessity of multimedia and the well-promoted technology of the MEMS and NEMS. Nowadays, this technology also thoroughly changes the modern living and greatly influences the economical growth leading to diversifications and functionalities. In order to face the new challenges in the 21 century, we are urgent to actively educate the engineers and scientists, who possess multiple professional disciplines, for researches in the area of information technology.

This project of fundamental education for information technology is proposed on the bases of the design, the manufacturing and the integrated system of the information technology. To successfully and efficiently achieve the final goal, the main project is divided into five subordinate projects that provide strong cross-links between each professional knowledge. Those are: Project 1 — Education of Information System Technology, Project 2 — Education on Communication Chip Design Technology, Project 3 — Education on Process and Manufacturing of Communication Related Device Technology, Project 4 — Education on Material of Information Technology, Project 5 — Education on Opto-Electro-Mechanical Integrated Technology. The interrelationship between each subordinated project and the main project is depicted in Figure 1. Basically, it is proposed to integrate the specialized knowledges and the enhance facilities in various professional areas of engineering and sciences of National Chung Hsing University. It is imminent to integrate the specialized courses and educate the students in engineering and sciences to get thorough understanding of the information technology and the important parameters as well as the phenomena closely related to this integrated system. Hopefully, this project will help students understand how the integrated system works and the important phenomena related to each professional area of engineering and sciences. This program is expected to build their capabilities to face the future challenges in the area of advanced integrated technology and help them successful in their future careers.