

**INTERNATIONAL CONFERENCE  
ON ENGINEERING EDUCATION**

**Proposal**

**for**

**ICEE 2007 Seoul**

**July 2004**

# **Proposal for ICEE 2007 Seoul**

## **International Conference on Engineering Education**

### **1. Name of Conference**

ICEE 2007 Seoul

### **2. Proposed Program Emphases/Themes**

The proposed central theme of the program is **Engineering Education in Knowledge-Based Society**, which covers the new paradigm changes in the fields of knowledge, based society and engineering education. The concept of knowledge-based society is presented compared to that of industry-based society. Along with the requirements of the job skill at the new paradigm, the new direction of engineering education is to be discussed.

The objective suggests a wide list of topics including (but not limited to):

- Teaching Methodology
- Technology Big Bang
- Links Between Education and Research
- Distance Learning
- Requirements for Engineers
- Current Trends in Engineering Education
- Integration of Basic Sciences
- Global Engineering Practice
- ICT and Multimedia Teaching Tools
- Accreditation
- International Cooperation

### **3. Plans for Publication of the Conference**

The proceedings will be published on CD-ROMs and limited data will be available on the conference web site. Conference proceedings will not be published in the printed form.

### **4. Dates and Location of the Conference**

The conference will be held in early August. The location of the main conference will be Seoul, where Hanyang University (HYU) is located, and the workshop will be held at Chonan, where the Korea University of Technology and Education (KUT) is located.

### **5. Proposed Schedule**

1 to 1/2 Year Prior to Conference:  
Mail Out First Call for Paper  
Conference Web Site on Line

1 Year Prior to Conference

Distribute Brochure About Conference on Site  
Mail Out Second Call for Paper

In the year of Conference

Middle of February: Abstracts Due Date  
End of March: Notice of Acceptance  
Middle of May: Camera Ready Manuscripts Due  
Early of June: Pre-Registration Deadline

## **6. Hosting Institution, Including Letter of Endorsement and Commitment from the Head of the Institution**

Hanyang University (HYU) and Korea University of Technology and Education (KUT) will cohost the conference. A letter of intention was submitted to ICEE/ISC by Dr. Kwang Sun Kim, Dean of Graduate Studies of KUT. Delegates from the two universities including Dean of Hanyang University, Prof. Kang, and Dean of KUT, Dr. Kim, will be present at ICEE/ISC Meeting to make an endorsement to cohost the Conference along with their letter of endorsement.

## **7. Proposed Chairs for IECC 2007**

General Co-Chairs:

Sung Goon Kang, Dean of College of Engineering, HYU  
Kwang Sun Kim, Dean of KUT

- Dr. Sung Goon Kang received his Doctoral degree in Material Engineering at University of Stuttgart, Germany. He had also worked for Max-Planck Institute für Metallforschung. In HYU, he had held important positions including the Dean of Student Affairs, from 1997 to 1999. Since 2001, he has been working as Dean of College of Engineering.
- Dr. Kwang Sun Kim received his Master and Ph.D. degrees from University of Kansas, USA, in Mechanical Engineering. After he was graduated from KU, he was a research associate at Yale University, and worked for the Raytheon Incorporated as an engineer. He had also engineering educational experiences as a dean of planning affairs at KUT. He is currently a director of SETEC and a member of many Korean Government Scientific Boards.

Local Organizing Committee Executive Co-Chairs:

Jong Hyeon Park, Associate Dean for Strategic Planning, College of Engineering, HYU  
Nam Jun Cho, Department Head of Chemical Engineering, KUT

## **8. Introduction to the Hosting Institutes**

### **8.1 Hanyang University (HYU)**

Hanyang University was founded in 1939 as an engineering school. Since its birth, HYU is best known for its superior engineering program. During Korean economic boom called “the miracle of Hangang”, HYU graduates had worked as the core elite groups in engineering in the government and private sectors. HYU has grown to be now one of the largest institutions in Korea with more than 33,000 students and 1020 full-time faculty members. Currently it has two campuses in Seoul and Ansan. Every year, HYU graduates about 300 Ph.D.’s. Its faculty members have published 1,000 scientific articles, referenced by the Science Citation Index (SCI), and these numbers have been steadily growing. Seoul Campus consists of 13 colleges including the college of Engineering, the largest and the most important college in HYU.

College of Engineering ranks among the very top universities in Korea, as evidenced by a series of recent national surveys sponsored by the Ministry of Education and daily newspaper “Jung Ang.” The success of the College of Engineering is solidly based on an innovative education system and pioneering research. College of Engineering consists of seven major divisions:

- School of Mechanical Engineering
- School of Materials Science and Engineering
- School of Electronics, Communication, and Computer Science
- School of Electrical Engineering and Biomedical Engineering
- School of Chemical Engineering and Bio Engineering
- School of Civil Engineering and Urban Planning Engineering
- School of System Engineering (Production Engineering, Nuclear Engineering, Geo-Environment Engineering)

More detailed introduction to HYU that appeared in the advertisement section in magazine “Scientific American” is attached in Appendix.

### **8.2 Korea University of Technology and Education (KUT)**

Korea University of Technology and Education (KUT) has been established with the purpose of training instructors well-versed in both theory and practice in their respective fields. These professionals will form the cutting edge of the next generation's industrial and technological innovation. With the industrial sector becoming more diversified and technological innovation happening everyday, the Korean government felt the need to train qualified instructors .

Government undertook to finance the establishment of a four year college to meet the technical needs of an ever-changing world. Thus, in March of 1992, the Korea University of Technology and Education open its door. UT currently has 4,000 students. There are 150 teaching staff members and 100 administrative and general service staff.

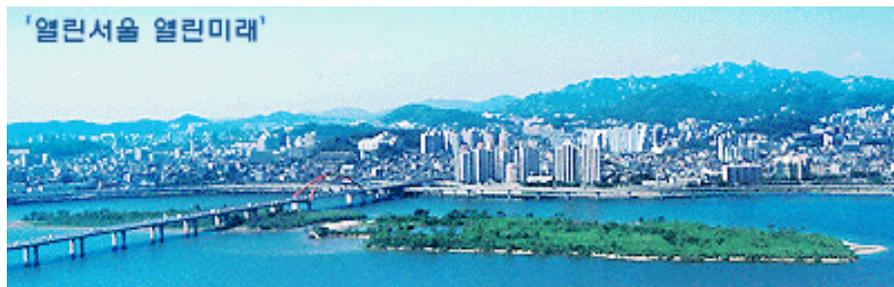
Education is performed by the following schools and departments.

- School of Mechanical engineering
- School of Mechatronics
- School of Information Technology
- School of Industrial Managements
- Department of Control system engineering
- Department of Industrial Design Engineering
- Department of Architectural Engineering
- Department of Materials Engineering
- Department of Applied Chemical Engineering

In addition, the KUT has a very unique institution so called Human Resources Development Institute. This institute is a specialized educational organization, which plays the role of a firm stepping stone for the development of domestic industry by providing opportunities to learn the knowledge of new technology required in the industrial site. With the state-of-the-art educational training programs designed by prominent specialists having field-experience, this institute actively pursues practical education. Because the institute is located in the great natural environment with the area of 66,000 m<sup>2</sup> suitable for both residence and leisure activities, it offers the best educational ambience for the trainees in terms of utmost educational efficiency and ideal space for rest. According to the philosophy of life-long education, the institute makes endless efforts in order to contribute to the development of domestic industry, particularly adopting up-to-date re-training system designed to improve the competitiveness of individual and that of the country as well. The institute provides trainees with the widely open educational space in which they can further develop their talent and creativity. Enjoy the time with the Human Resources Development Institute complete with the state-of-the-art technical equipment of educational training.

## 9. Introduction to Hosting Cities:

### 9.1 Seoul



**Geopolitics:** Seoul is the capital of (South) Korea, located roughly at the center of Korean peninsula or more precisely at 126°59' east longitude and 37°34' north latitude. It had been the capital city since the beginning of Chosun Dynasty in 1394.

**Population:** Seoul has a population of 10,321,449 individuals and 3,458,511 households as of the end of 1999. This accounts for about a quarter of the total national population. As for the proportion of male to female excluding foreigners, men (5,141,141) slightly outnumber women (5,123,119).

Five out of the 25 "gu" or wards have more than 500,000 residents. Songpa-gu has the biggest population of 668,421. In contrast, Jung-gu has a population of only 129,061. In the past 600 years since Seoul became the capital of the nation in 1394, the population of Seoul has grown 110 times.



It has one of the highest population densities in the world of 17,157 persons/km<sup>2</sup>.

The number of foreign residents in Seoul as of the end of 1999 is 57,189 or about 0.55 % of Seoul's total population. They include 18,763 Americans, 12,283 Chinese, and 6,332 Japanese. There are people of more than 90 different nationalities currently residing in Seoul, forming a small global village.

**Climate:** Seoul belongs to the temperate zone featured by four distinctive seasons of spring, summer, autumn and winter. The yearly average temperature of Seoul is 12.9 degrees C. Temperatures in Seoul tend to fluctuate a great deal, reaching as high as 36 degrees C in the summer and dropping as low as -14 degrees C in the winter.

Influenced by the north Pacific high pressure system, Seoul has hot and humid summers with average temperatures above 20 degrees C from June through September.

During the midsummer period the city often records daily highs of over 30 degrees C. In winter, Seoul is topographically influenced by the expansion of the Siberian high pressure and prevailing west wind with temperatures dropping lower than other regions on the same latitude. The rise and fall of the high pressure system causes a typical cycle of three successive cold days followed by four warmer days, relieving people from freezing temperatures.



The annual precipitation in Seoul averages 1,210.2 mm, which is more than the average amount of rainfall across the peninsula. Most of the rainfall is concentrated in the rainy months (monsoon period) of June through September when downpours account for about 70 % of the total annual precipitation. Except for those rainy spells, however, Seoul boasts fine weather throughout the year and is especially famous for its azure autumn skies.

**Area:** The area of Seoul as of the end of 1997 is 605.52km<sup>2</sup>, or 0.6% of the entire country. The Hangang bisects the city into two parts, northern and southern Seoul. Northern Seoul totals 297.97km<sup>2</sup> (49.2 %) while the southern part is 307.55 km<sup>2</sup> (50.8 %).

Among the 25 autonomous "gu" or wards of Seoul, the largest is Seocho-gu (47.13km<sup>2</sup>) and the smallest is Jung-gu with an area only one fifth (9.97km<sup>2</sup>) that of Seocho-gu.

The expansion of the city has been curbed since the last administrative reorganization in 1973. The lifestyles of Seoul citizens, however, have been influenced since the 1970's due to the rapid growth of satellite cities around the capital area.

**Bordering Cities & Counties:** Gyeonggi-do: Goyang-si, Yangju-gun (county) and Euijeongbu-si to the north; Namyangju -si, Guri-si and Hanam-si to the east; Seongnam-si, Gwacheon-si and Anyang-si to the south; Gwangmyeong-si, Bucheon-si and Gimpo-si to the west.

**Origin of Name:** Seoul derived from the ancient word Seorabeol or Seobeol, meaning "capital"

**Administrative Organization:** Mayor, 3 Vice Mayors, 3 Offices, 8 Bureaus, five Director-Generals, & 63 Divisions

**Legislative Organization:** Seoul Metropolitan Council

**Administrative Districts:** 25 Gus consisting of 522 Dongs

**Budget:** 9,924,504 billion won

**Per Capita GRDP:** 8.5 million won, 23.7% of the GNP of 388 trillion won

**Mountains & River:** 8 consisting of 4 inner mountains: Mt. Bugaksan in the north, Mt. Naksan in the east, Mt. Inwangsan in the west and Mt. Namsan in the south; 4 outer mountains: Mt. Bukhansan in the north, Mt. Yongmasan in the east, Mt. Deogyangsan in the west, and Mt. Gwanaksan in the south.

Hangang (or Han River), sometimes written as “Han River” in English is the river that bisects Seoul into two equal-sized parts.

## **9.2 Chonan**

The KUT is located in Chonan city.

Chonan City is 83.6 kilometers away from Seoul (by expressway). The Kyongbu line runs north and south and the Changhang line extends from south to west. A number of roads radiate in all directions toward Seoul, Chinchon, Asian (Onyang), Kongju, Pyongtaek and Taejon.

Basin type; Inland mountain type

- \* The hub of the city: The center of transportation, commerce and education.
- \* North/west (inland plains): Fruit, farming.
- \* South/east (middle mountains): High-profit crops, tourist attractions.

The nucleus of the country

- \* Supports the Metropolitan area. The boundary gate of the western part of Chungchongnam-do Province.
- \* An important spot in communication as the junction of the three southern provinces, with national highways/railroads and express highways/railroads.

## 10. Proposed Cultural Visits

### 10.1 In and Around Seoul

#### 1) Gyeongbokgung



Gyeongbokgung Palace (Historic Site No. 117) was built in 1395 by King Taejo the founder of Chosun Dynasty as the primary residence for the royal family. Among the five palaces in Seoul, it is the largest and most beautiful in architectural style. There are elegant pavilions such as Gyeonghoeru and Hyangwonjeong and other refined wooden and stone structures such as Geunjeongjeon Hall.

#### 2) Changdeokgung and Biwon



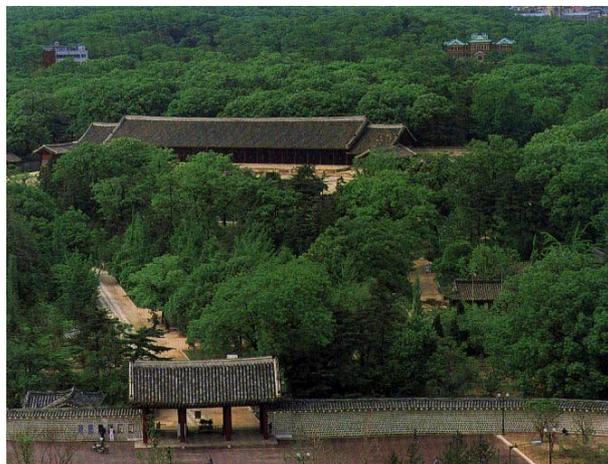
Changdeokgung Palace (Historic Site No. 122) was originally constructed in 1405 as a detached palace after Gyeongbokgung Palace was constructed. However, since the period of the ninth monarch of the Chosun Dynasty, King Seongjong, it was used as the main palace.

This palace was burnt down during the Japanese invasion of 1592 and rebuilt in 1611 during the reign of Gwanhaegun. With the man-made structures in harmony with the beautiful natural surroundings, it is one of Seoul's most frequently visited sites. One can find here many important cultural assets such as Injeong-jeon, Daejo-jeon and Seonjeong-jeon halls, and Nakseonjae Villa. Changdeokgung Palace is one of UNESCO's World Heritage Sites.

Biwon (Secret Garden) is located behind Changdeokgung Palace. A serenely exquisite garden, Biwon was used by the king and royal family during the Chosun Dynasty as a place for relaxation. It features many ponds, pavilions and wooded areas containing thousand-year-old trees. Pavilions such as Buyongjeong, Yeonghwadang, Juhapnu and Eosumun Gate are located in and around the garden, all displaying traditional Korea architectural excellence. Biwon is considered the best representative garden to view Korea's distinct natural beauty.

#### 3) Jongmyo (Joseon Dynasty Shrine)

Dongmyo Shrine, Treasure No. 142, was built to honor General Gwanuo of the Han Dynasty of China. It was called "Donggwan-wangmyo" originally. Gwanu is one of the main characters in the Chinese classic "Samgukji" (Story of the Three Kingdoms). Of the three shrines of Dongmyo (east shrine), Seomyo



(west shrine) and Bukmyo (north shrine), **which** were constructed in 1601, during the reign of King Seonjo of the Chosun Dynasty, but only Dongmyo Shrine remains today. This shrine is surrounded by a wall of stone and mud, and covers an area of 9,315 square meters. With its trees and benches, it serves as a good resting place for Seoulites.

#### 4) Panmunjom, Joint Security Area

Among the provisions of the Armistice Agreement signed July 27, 1953, to bring a cease-fire in the Korean War, was establishment of the Military Armistice Commission, an agency to supervise implementation of the truce terms. Meetings of MAC representatives from the United Nations Command and the Korean People's Army/Chinese People's Volunteers are held at the Joint Security Area, an 800 meter-wide enclave, roughly circular in shape, that bisects the Military Demarcation Line separating South and North Korea. The JSA is often called the "Truce Village," but is best known worldwide as Panmunjom, a village which was destroyed in the war but gained lasting fame as the site where the Armistice Agreement was negotiated, even though it was actually signed by the opposing commanders, General Mark W. Clark, Commander-in-Chief, UNC, at Munsan south of the DMZ and by Marshal Kim Il Sung, KPA Supreme Commander, and Peng Teh-huai, Commander, CPV, at Kaesong in the north. Military and civilian guests are permitted to visit the JSA as guests of the respective sides. Currently, the UNC sponsors nearly 100,000 visitors each year, most of them tourists who come on visits arranged by the Korea Tourist Bureau or military personnel whose visit is encouraged to ensure their better understanding of the situation in Korea.



#### 5) National Museum



The National Museum is committed to preserving the precious cultural assets of Korea, which embody the spirit and wisdom of our ancestors and are constantly working to ensure the museum is a place that can give dreams, hope and enjoyment to the people. In 1986, the National Museum of Korea moved to Jungangcheong, the former Japanese colonial government building. Expanded and reorganized, the museum came to have 24 galleries and 13 storage rooms. Scientific and computerized management of the collection was gradually pursued. Education programs were also activated with establishment of new social education programs: Museum Class for Youth, Saturday Public Lectures, Cultural Education Course for Seniors, Cultural Education Course for Housewives, Training Course for School Teachers, Training Course for Tour Guides, Museum Tour for Mothers and Children, and the Traveling Museum.

#### 6) National Center for Korean Traditional Performing Arts

The National Center for Korean Traditional Performing Arts is an organization, which began more than 1400 years ago. Its forerunners can be traced back to the institute called Eumseongseo during the reign of Queen Chindok of the kingdom of Silla. The succeeding kingdom of Goryeo had two national music institutes, which were combined in the early part of the Chosun



Dynasty into Jangakwon, or "Music Affairs Institute", which continued to be responsible for all music, song, and dance performed at major national celebrations, and for the training of musicians and the composition of new music. This institute managed to survive the order of the Japanese occupation. During the Korean War, on April 10, 1951, the present center was opened in Busan. Now, the National Center for Korean Traditional Performing Arts works toward preserving, researching, and transmitting traditional music and dance.

## 7) Korean Folk Village

The Korean Folk Village, which was opened on the 3rd October, 1974, as an open-air folk museum and international tourist attraction for both Korean and foreign visitors. It is the home of the true Korean heritage where many features of the Korean culture have been collected and preserved for succeeding generations to see and learn about. A traditional marketplace offers the exotic flavors of Korean cuisine from various regions. Shops stock a variety of traditional handicrafts and souvenirs. "Farmers' Music and Dance" and "Acrobatics on a Tightrope" are performed in the performing arena twice a day. In spring, autumn and on big holidays, traditional holiday customs and ceremonies of coming-of-age, marriage, funeral and ancestor memorial are recreated.



## 10.2 Around Chonan

### 1) Independence Hall of Korea

The Independence Hall of Korea is a place dedicated to display Korean history from past to present, focusing on the independence movement from the Japanese colonial period. This Independence Hall encompasses the full range of Korean history to offer a better understanding of Korean cultural heritage and to enrich knowledge, patriotism, and sheer enjoyment of Korean people. Devoted to collect, preserve, exhibit, study and research the materials and resources about Korean history, visitors can learn the wisdom of Korean ancestors in overcoming a national crisis, and to remind Koreans of their national consciousness. The collections in the Independence Hall have been managed and categorized into contributed, entrusted and duplicated materials. Entrusted materials are the ones that an individual or organizations entrust to the Independence Hall temporarily or permanently. Duplicated materials are the ones that have possibility of being damage or disappear so it has limited in the use and has been copied from the original data.



### 2) Sudeoksa Temple

Located on Mt. Deoksungsan (495 m), this historic temple was first built in 599 by Jimyeongbeopsa, a revered monk, during the Baekje Kingdom and was later rebuilt by the great monk Wonhyodaesa (see Borim Temple). Daeungeon, the main hall of this temple, was built in 1308 and is the oldest wooden structure in the country (designated as National Treasure No. 49). Located around the temple site are Iljumun Gate, Jongnu Pavilion,



Gwaneum Rock, Mangongtap Pagoda, and Geumgangmun Gate. On the premises are a three-story stone pagoda which was built during the Silla Kingdom and Gyeonseongam, a Buddhist nunnery. Surrounded by lush forests and unique rock formations, this large temple is famous for its scenic setting.

### 3) Donghaksa Temple



Located in Sangbong Valley, 25 km from Gongju, Donghaksa Temple was built by Priest Hoehwasang in 724, the 23rd year of King Seongdeok-wang's reign during the Silla Kingdom. It was later expanded by Priest Doseonguksa during the reign of King Taejo in the Goryeo Dynasty. The temple contains Daeungjeon (main hall), a three-story stone pagoda, Samungak Pavilion, Sungmojeon (an altar dedicated to the six patriots loyal to King Danjong, who died refusing to serve Sejo), and Donggyesa Temple (an altar for Bak Jesang, a Silla patriot). Two kilometers north of this temple are the Twin Pagodas on the site of Cheongnyangsa Temple, and the Nammaetap Pagodas. The Nammaetap Pagodas consist

of two pagodas, one seven stories and the other five stories high. These two pagodas were constructed during the Silla Kingdom, following the architectural style of the Baekje Kingdom. Today the temple is used as an institute for Buddhist nuns.

### 4) Hyeonchungsa

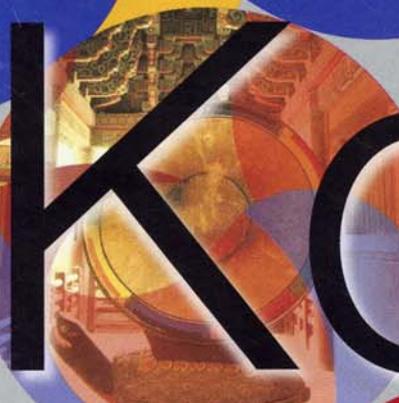
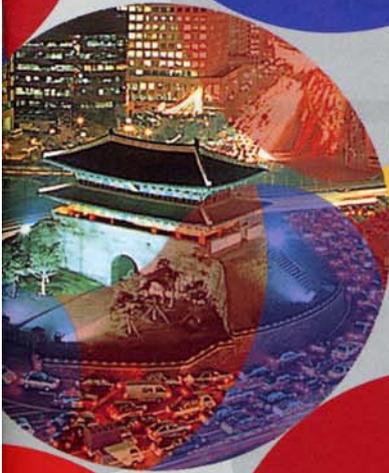
Hyeonchungsa is a shrine dedicated to Admiral "Chungmugong" Yi Sun-Sin. It is located on Mt. Banghwasan, 4 km from downtown. It was built in 1706, the 32nd year of King Sukjong's reign. One year later, King Sukjong bestowed the shrine the name "Hyeonchungsa". It was rebuilt in 1932 during the period of Japanese colonization by the Chungmugong Relics Preservation Association. In 1966, the government expanded the shrine's compound to 547,297 square meters, and declared it a national shrine.



**11. Tentative Expenses and Budget (subject to modifications)**

**(Information in this section contains privileged information and is omitted from Web version.)**

SPECIAL ADVERTISING SECTION



Gateway

# Korea

SCIENTIFIC  
AMERICAN



Ministry of Commerce,  
Industry and Energy

# Hanyang University: A Mecca of Engineering Technology and Science



In 1939, Lyun-Joon Kim—a true visionary at the time when Korea was mired in the Japanese occupation—founded the small, private Dong-A Engineering Academy. He had great hopes for the future of Korea. Since then, that unknown college has dramatically grown to become the present Hanyang University, and has been at the heart of the spectacular industrial growth of Korea over the past decades. Hanyang has produced more than 30% of the total engineering professionals in the nation over the years. Today, graduates of Hanyang University are found in nearly every sector of Korean industry.

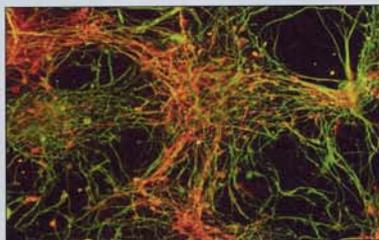


Having just celebrated its 64th anniversary, the University proudly looks back with a sense of accomplishment; located on two campuses at Seoul and Ansan, with more than 33,000 students and 1020 full-time faculty, Hanyang University is one of the largest institutions in Korea. The Seoul campus consists of thirteen colleges, which include colleges of medicine and music while the Ansan campus is divided into seven colleges. Although Hanyang University has been best known for its engineering programs, the University now offers diverse academic programs ranging from nanoscience and technology to abstract music theory—all to meet the rapidly changing needs of students and the greater society.

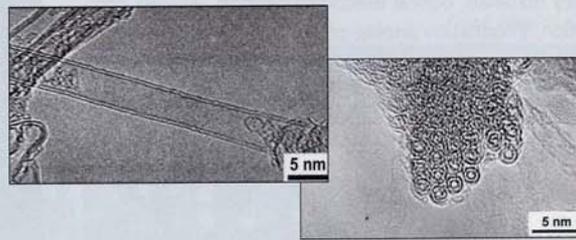
maintained its excellence in engineering education. Today, the College of Engineering is poised to rank among the very top such universities in the country, as evidenced by a recent national survey sponsored by the Ministry of Education. In it, Hanyang's architectural, civil, materials, electrical and computer engineering departments were ranked tops in the country. The success of the College of Engineering is solidly based on an innovative educational system and pioneering research. In 1995, the Ministry of Education awarded USD 20 million to the Graduate School of Advanced Materials and Chemical Engineering for its outstanding graduate program in the fields of advanced materials and chemical engineering. This resulted in establishment of a new centralized research facility equipped with state-of-the-art microanalysis and synthesis instruments, devoted to the development of advanced material systems.

Since it was first established, the University has always

## Recent Scientific & Engineering Achievements from Hanyang



*Dopaminergic neurons derived from human embryonic stem cell*



*Double-walled carbon nanotubes from the Nanotechnology Lab*

Kim, Chong-Yang, Ed. D.  
President

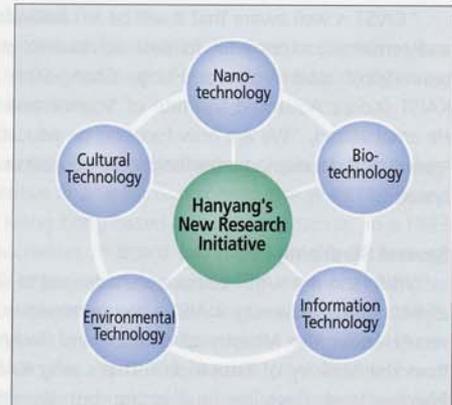


### Korea's Silicon Valley



#### Education-Research-Industry Cluster

- Gyeonggi Technopark
- Korea Testing Laboratory
- Korea Electrotechnology Research Institute
- Korea Institute of Industrial Technology
- The Applied Research Center for Electro-Fusion Technology



Hanyang University also emphasizes the strong university-industry-business liaison and, in 1997, established the Hanyang Institute of Technology. With a vision to build a Korea's silicon valley, it also plans to complete industry-university-business clusters based at the Ansan campus by 2005, in order to promote technology transfer and foster an entrepreneurial spirit in young Hanyang researchers.

As one of the most prolific research institutes in Korea, every year the University graduates about 300 Ph.D.'s. Hanyang's faculty have published 1,000 scientific articles, referenced by the Science Citation Index, and these numbers have been steadily increasing. Faculty members at Hanyang University, in addition to being dedicated teachers, are actively involved in high-quality scientific research and provide key tech-

nical support to core technologies in several industries such as the semiconductor (Samsung Electronics) and display businesses (LG Philips Displays).

The College of Engineering consists of seven divisions and maintains five professional/specialized graduate schools and ten research institutes. Its research areas cover a diversified domain, ranging from nanoengineering of carbon nanotubes, self-assembly of nanoparticles and molecules, next-generation lithography, quantum dots to intelligent machines with strong emphasis on nanotechnology, biotechnology, information, environmental and cultural technologies. The College of Engineering is a place where scientific curiosity and innovative minds can intersect with today's cutting-edge science and technology.

[www.hanyang.ac.kr](http://www.hanyang.ac.kr)

R & D activities at Hanyang University		
National Research Program	# of Projects	Amount (M in USD)
Industry Sponsored Projects	787	54
National Research Laboratories	256	10
National Engineering Research	22	4.3
Centers	8	13
Engineering Education Centers	3	2.5
Publications	1040 SCI articles in 2002	

#### Major National Research Laboratories at Hanyang

- High-performance Nano SOI Processing Laboratory
- Nano Particulate Materials Technology Laboratory
- Micro Optics Laboratory
- Thin film Electronic Materials Laboratory
- Micro Multilayered Ceramics Forming Laboratory
- Giga Electronics System Laboratory
- Precision Rotating Electromechanical Machine Laboratory
- Information & Communication Materials Laboratory
- Ultrafine grained structure Materials Laboratory