

IEICE Global Plaza

—Monthly community plaza in English for students, faculties and engineers—

Essay

You Are Welcome to Visit The UEC Museum of Communications!



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It is my great pleasure to have an opportunity of introducing the UEC Museum of Communications to all of IEICE Global Plaza general readers. Since most of the reserves and exhibits in the Museum have been involved in the long history of ICT human resource development in the university, first of all, I will refer to the background of the times related to the human resource development.

Background and History

The former academic institution of the University of Electro-Communications (UEC), the Technical Institute for Wireless-Communications (here, TIWC) was founded by Wireless Association at Azabu in Tokyo, in 1918. Around the time, Governments, scientists and engineers of many countries were shocked at the huge maritime disaster which the British passenger liner Titanic encountered after colliding with an iceberg on the way of her voyage from Southampton, UK to New York City and sank in the North Atlantic Ocean on April 15, 1912. The accident caused the death of 1,502 people and the need of compulsory maritime safety and rescue programs, and regulations based on wireless telecommunications technologies evolving in the world has come up in all vessels over the world. The fundamental technologies were based on telecommunications using Morse code. It was urgently required to develop radio operators in Japan as well. TIWC moved to Meguro in Tokyo in 1920 and evolved to foster quite many radio engineers and operators.

TIWC was transferred to Ministry of Communications in 1942 and reformed as the Central Technical Institute for Wireless-Communications (here, CTIWC) integrated with the nationwide private schools of wireless communication. Meanwhile, electronic technologies remarkably evolved, spark type radio transmitter was changed to valve type in due course and wireless communication technologies were accelerated in the World War II as well known. The CTIWC was once transferred to Ministry of Education in 1948 and under the relevant National School Establishment Act, reorganized as the current UEC in Chofu, Tokyo which has been evolved to foster electro-communications engineering for long years, especially develop leading wireless communication engineers toward the next generation.

In 1970's, the satellite communications technologies came up to be available for the vessel communications, the International Maritime Satellite Organization (INMARSAT) was funded in 1979 and it started to provide global satellite communications services to the maritime community. Large vessels were equipped with the maritime satellite communications at first and the relevant technologies were applied to most of vessels year by year. Thus, the conventional technologies based on Morse code for the safety of vessels were modernized, the Global Maritime Distress and Safety System (GMDSS) was set up in 1999 so that full-time maritime communication operators using Morse communications were not required in most of vessels and the long year development of wireless communication operators was terminated in UEC as well.

The UEC Museum of Communications was established to display those educational facilities and historical equipment, devices and documents in 1998 on the occasion of the 80th anniversary of UEC and renewed in 2008 on the occasion of the 90th anniversary. As Prof. Masataka Ariyama, then President of UEC suggested, the Museum provides archives of historical items to visualize the long history of the university and open it to younger generations, general researchers and communities for their education and academic activities. In comparison with the other Museums, it is worthy of remark that some epoch-making communication facilities in old ages have been maintained to still work.

Overview of Museum



Fig.1 East-10 building in the campus accommodating the Museum

The Museum is located in East-10 building of UEC. The first and second floors of the building accommodate the Museum. The other floors accommodate the Advanced Wireless Communication Research Center. The layout of exhibition in the Museum is shown in Fig. 2 and Fig.3. The whole area of the Museum reaches around 820 m². The first

floor has two big exhibition rooms and the second floor has five exhibition rooms.

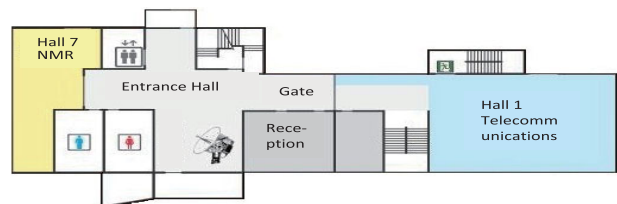


Fig. 2 First floor layout of exhibition rooms in the Museum

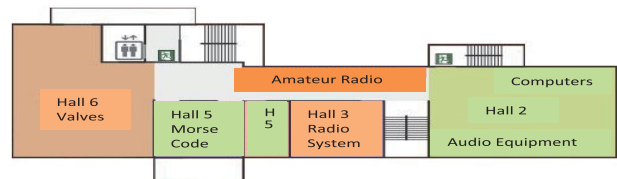


Fig. 3 Second floor layout of exhibition rooms in the Museum

The Entrance Hall displays the INMARSAT satellite communication antenna which was used for large vessels, with the history of UEC, the guidance of GMDSS facilities for the safety of vessels, protection of life and properties in maritime mobile communications.

Hall 1 displays the equipment and devices used for training and experimental works in TIWC, for example, the spark type radio transmitter with short time discharge, valve type radio transmitter used in early days, radio equipment and radio navigation aids which have been developed since the World War II, mostly representing the history of radio equipment development in the 20th century. In the Hall, a model of on-board radio station in commercial vessels in 1970's is exhibited to make short wave communications experienced by the visitors.

Hall 2 located upstairs exhibits the history of computers and audio equipment. You can experience the real operation of classical equipment on a large visual monitor so that students



Fig. 4 Reconstructed radio station in a vessel



Fig. 5 A well working set of Edison Standard Phonograph.

or general visitors easily understand the substance of the equipment. Above all, a set of Edison Standard Phonograph which was used in 1870's, has been maintained by the staffs of the Museum so that you can listen to the sweet sound produced by the creative equipment using a wax cylinder.

Hall 3 exhibits the history of radio receivers improvement in 1920's to 1960's, in USA, based on the collection by Mr. Shichiro Yasukawa. You can realize a rare radio receiver symbolizing the technological innovation in USA, Hallicrafters Skyrider Dual Diversity DD-1 with an anti-fading function developed there.

Hall 4 exhibits the equipment concerned with meteorological data for vessels and facsimiles. You can see the weather observation radio-sonde receiver and observatory equipment, radio receiver of images from the geostationary meteorological satellite "Himawari" in early days and facsimile receivers for vessels.

Hall 5 realizes a training room for Morse code operation in radio transmitter and receiver through the coding process and phonetic outputs. The Hall also exhibits the operation of wired telegraph equipment where the electricity was applied at first in the world in 1910's.

Hall 6 exhibits electron devices including about 20, 000 historical valves. The outstanding exhibition is the first diode in the world in 1904 called Fleming Valve, the famous triode invented by Lee De Forest in 1906, the transmitting tubes developed by Irving Langmuir in 1912-13, the photo multiplier



Fig. 6 Exhibition of valuable Lieben Tube

applied to the neutrino observatory "Super-Kamiokande", with the sign of the 2002 Nobel Laureate, Prof. Masatoshi Koshiba. Additionally, the mercury vapor filled triode "Lieben Tube" invented by Austrian Robert von Lieben, Eugen Reisz and Siegmund Strauss in 1912 is one of about ten very valuable items over the world and it is loaned from Tekniska Museet in Sweden. All of the valves are implemented on seismic isolation units so that all of them were safe even in the huge East Japan earthquake in March 2011.

Hall 7 introduces the outputs of R&D activities in UEC after the establishment, covering Nuclear Magnetic Resonance facilities where UEC took the initiative of R&D in Japan.

Thus, it is our great pleasure if you visit the Museum and can realize the history of telecommunications through the exhibition.

Location : 5 minutes on foot from Chofu Station on Keio Line.
Opening hours : 12 : 00 ~ 16 : 00 on weekdays except holidays.

Note by IEICE-TFIPP (Kenzo Takahashi, Prof.)

The author graduated from Tokyo University of Science in 1961, specializes in radio technologies covering maritime, advanced satellite and optical communications. He serves UEC since 1975. He has a unique experience that he was twice selected by Government and served the 32nd and 36th Japanese Antarctic Research Expeditions as the radio operator. You will exactly be impressed by his article.

Hot Topics

Let's Join IEICE Society Conference 2012 !

IEICE-TFIPP

Summary of the Conference

The 2012 IEICE Society Conference will be held at the University of Toyama in Toyama City, on September 11-14, 2012, where three Societies of Engineering Sciences Society (ESS), Communications Society (CS) and Electronics Society (ES) will join. The program and details can be followed at <https://www.gakkai-web.net/gakkai/ieice/pro12s/index.html>.

The Conference includes special Strategic Sessions organized by the General Conference Board and Societies as noticed at https://www.gakkai-web.net/gakkai/ieice/pro12s/0724_Kpro.pdf.

The registration fee for students who will present speeches in Conference Sessions or join Sessions for their auditory purpose is set up to be low so as to participate in the Conference without difficulties of expense. Additionally, any speaker covering Postdoc or graduate students can show a mark of job finding, "Career Explorer" on the screen in the presentation to promote their employment through the participants.

English Session BS-5 "Network and Service Design, Control and Management"

IEICE Communications Society will provide a complete English Session BS-5 entitled as above during the four days of the Conference. This Session has evolved to promote the globalization of IEICE for both Japanese and foreign researchers and students since it was established by Technical Committee on Information Communication Management (ICM) of IEICE Communications Society in 2004. 46 papers in total will be presented this year.

Upcoming International Conferences

ASMS2012-IEICE Communications Soc., in Baiona, Spain, on September 5-7, 2012, <http://www.asms2012.org/>

ICIN2012-IEICE Communications Soc., in Berlin, Germany, on October 8-17, 2012, <http://www.icin.biz/>

APCC2012-IEICE Communications Soc., in Jeju Island, Korea, on October 15-17, 2012, <http://apcc2012.org/main/>

ISITA2012-IEICE Electronics Soc., in Hawaii, USA, on October 28-31, 2012, <http://www.isita.ieice.org/2012/>

ISAP2012-IEICE Communications Soc., in Nagoya, Japan, on October 29-November 2, 2012, <http://www.isap12.org/>

APSITT2012-IEICE Communications Soc., in Santiago and Valparaiso, Republic of Chile, on November 5-9, 2012, <http://www.ieice.org/cs/in/APSITT/2012>

ITST2012-IEICE Communications Soc., in Taipei, Taiwan, on November 5-9, 2012, <http://www.itst2012.org/>

IWSEC2012-IEICE Engineering Sciences Soc., in Fukuoka, Japan, on November 7-9, 2012, <http://www.iwsec.org/2012/>

ICPR2012-IEICE Information Systems Soc., in Tsukuba, Japan, on November 11-15, 2012, <http://www.icpr2012.org/>

Kaleidoscope2013-IEICE, ITU, Kyoto University, et al, in Kyoto, Japan, on April 22-24, 2013, <http://www.itu.int/ITU-T/uni/kaleidoscope/2013/progcom.html>

EMTS2013-IEICE Electronics Soc., URSI Commission B, technical sponsorship by IEICE Communications Soc., in Hiroshima, Japan, on May 20-24, 2013, <http://ursi-emts2013.org/>

Message from TFIPP Secretariat

This issue is delivered also by a free mail magazine "IEICE Global Plaza on Line" with updated news of interest for you. Please contact Prof. Takahashi, TFIPP (Task Force for International Policy and Planning) at global@ieice.org, if you need. Back numbers are available in archives at http://www.ieice.org/eng/global_plaza/index.html/.

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