

## **INTERNATIONAL SUMMER SCHOOL**

### **INTELLIGENT INFORMATION TECHNOLOGY IN THE ERA OF INTERNET OF THINGS**

Jul 10 – Jul 23, 2023

Harbin Institute of Technology, Harbin, P.R. China

#### **GENERAL INFORMATION**

The theme of this international summer school is “Intelligent Information Technology in the Era of the Internet of Things”, mainly starting from cutting-edge technologies in fields such as 5G/6G, artificial intelligence, the Internet, the Internet of Things, and industrial big data. Through a series of courses and themed lectures by world-class scholars, undergraduate students are guided to understand the latest development status and future trends in the field of advanced information and communication technology, deepening the understanding of 5G/6G AI, Industrial Internet and other technologies’ understanding of intelligent manufacturing and Industrial Internet, in-depth understanding of the profound impact of the increasingly intelligent information and communication technology of general sense on the world pattern (politics, economy, culture, etc.) and human life mode in the era of intelligent manufacturing and artificial intelligence, and cultivating undergraduates’ interest in future information and communication technology, artificial intelligence technology and related cross-cutting research fields.

#### **INTERNATIONAL SUMMER SCHOOL LEARNING AND ACTIVITY CONTENT**

This international summer school includes: academic lectures, on site teaching, and innovative practice. The overall content is shown in the table below.

Module	Content	Class Hour	Credit	
Academic Lectures	Intelligent Information Direction Theme Report	Lajos Hanzo (Academician)	2	2
	IRS Assisted RF and Optical Wireless Communication	Robert Schober	2	
	The Development and Evolution of Communication Technology	Hsiao-Hwa Chen	4	
	5G Internet of Things Network	Yonghui Li	2	
	Energy Self-sufficiency of Future Wireless Networks	Kun Yang	2	
	Basic Wireless Performance of Buildings	Jiliang Zhang	2	
	Optical Interconnection and Trusted Intelligence of 6G Vehicle Network	Wei Ni	2	
	Economics and Game Theory Guiding Emerging Communication Networks	Lingjie Duan	4	
	Smart Grid and Future Energy - How Information and Communication Technology (ICT) Will Change Our Lives	Hongjian Sun	4	
	Mobile Edge Computing for 6G and Internet of Things	Yan Zhang	2	
	Optimization of RAN Services Based on AI	Tao Chen	2	
	Energy Collection Communication: Theory and Principles	Yunfei Chen	4	
	Change Detection Based on Remote Sensing Data	Tian JiaoJiao	2	
	Environmental Perception and Modeling in Autonomous Driving	Shiyong Cui	2	
On site Teaching	International Cutting-edge Technologies for 3D Video Signal Compression and Communication	Wei Xiang	16	1
Innovative Practice	Design of Wireless GPS Signal Source		32	2
Total credit hours		Total credits		
80		5		

### INTERNATIONAL CUTTING-EDGE TECHNOLOGIES FOR 3D VIDEO SIGNAL COMPRESSION AND COMMUNICATION

Starting from the development history and application scenarios of 3D video, we will explain the technical key points in the collection, encoding, transmission,

rendering, and quality evaluation of 3D video in simple terms. Through this course, students are guided to understand the development history and compression standards of 3D videos, understand the compression process of 3D videos, and master the most basic 3D video compression methods.

#### **DESIGN OF WIRELESS GPS SIGNAL SOURCE**

For the practical and innovative activities of electronic information majors, supplemented by lectures and students' hands-on practice, with the goal of cultivating students' engineering and innovation awareness, and based on the combination of software and hardware applications, students are required to be able to integrate knowledge and engineering skills such as radio knowledge, communication modulation, programming and thinking. Through the process of requirement analysis, data query, scheme demonstration, design debugging, indicator testing, analysis and summary, the design and implementation of a GPS RF signal source based on software radio will be completed.

#### **OTHER ACTIVITY ARRANGEMENTS**

*I. Visit and exchange of professional laboratories on campus*

*II. Report on the Advanced Achievements of Academician Liu Yongtan*

*III. Outdoor activities*

#### **CONTACT INFORMATION**

Please contact Wang Meiyang at wangmy669@126.com(E-mail).