



燕山大学
YANSHAN UNIVERSITY



Silesian University
of Technology



“智联山海” 燕山大学国际暑期学校招生简章

Admission Brochure of Yanshan University “Zhilian Shanhai” International Summer Camp for Polish Students

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2025 “智联山海”燕山大学国际暑期学校活动安排表

星期六	星期日	星期一	星期二	星期三	星期四	星期五
7月12日 波兰团组接机（10人） 天气： 温度：	7月13日 上午： 开营仪式 (09:00-10:00，国际学院205) 下午： 校史馆、博物馆 天气： 温度：	7月14日 上午： 第1次文化课 (09:00-11:35，国际学院104) 下午： 第1次专业课 （14:00-16:00，，国家冷轧板带装备及 工艺工程技术研究中心） 天气： 温度：	7月15日 上午： 第2次文化课 (09:00-11:35，国际学院104) 下午： 第2次专业课 （14:00-16:00，河北省重型机械流体动力传输与控制实验室） 天气： 温度：	7月16日 上午： 第3次文化课 (09:00-11:35，国际学院104) 下午： 第3次专业课 （14:00-16:00，机电液一体化国家级实验教学示范中心） 天气： 温度：	7月17日 上午： 第4次文化课 （09:00-11:35，国际学院104） 下午： 第4次专业课 （14:00-16:00，机械学院J3） 天气： 温度：	7月18日 上午： 第5次文化课 （09:00-11:35，国际学院104） 下午： 第5次专业课 （14:00-16:00，航空自润滑关节轴承共性技术重点实验室） 天气： 温度：
7月19日 文化考察： 山海关+老龙头（10人） 天气： 温度：	7月20日 文化考察： 北戴河(10人) 天气： 温度：	7月21日 上午： 第6次文化课 （09:00-11:35，国际学院104） 下午： 书法(14:00-16:00，国际学院104) 天气： 温度：	7月22日 上午： 第7次文化课 （09:00-11:35，国际学院104） 下午： 篆刻(14:00-16:00，国际学院104) 天气： 温度：	7月23日 上午： 第8次文化课+剪纸 （09:00-11:35，国际学院104） 下午： 结业汇报+结业仪式 (14:00-17:00，国际学院205) 天气： 温度：	7月24日 上午： 从秦皇岛乘坐火车至北京 下午： 故宫 天气： 温度：	7月25日 白天： 在北京著名景点进行游览（依据实际行程安排为准：可能游览地为长城、天安门广场、国家博物馆、国家大剧院等） 晚间： 晚饭后转送至北京机场准备返程 天气： 温度：

注：课程讲授和文化考察活动的安排会根据天气等因素酌情调整，具体安排以实际情况为准。

Program Schedule of "ZhiLian Shanhai" 2025 International Summer Camp for Polish Students

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
<i>12th July</i> Pick-up of Polish groups (10 person) Weather: Temperature:	<i>13th July</i> AM: opening ceremony (09:00-10:00, College of International Education building, room 205) PM: School History Center and Museum Weather: Temperature:	<i>14th Julyt</i> AM: 1 st cultural course (09:00-11:35, College of International Education building, room 104) PM: 1 st professional course (14:00-16:00, National Engineering Research for Equipment and Technology of C.S.R) Weather: Temperature:	<i>15th July</i> AM: 2 nd cultural course (09:00-11:35, College of International Education building, room 104) PM: 2 nd professional course (14:00-16:00, Heavy Machinery Fluid Power Transmission and Control Laboratory of Hebei Province) Weather: Temperature:	<i>16th Julyt</i> AM: 3 rd cultural course(09:00-11:35, College of International Education building, room 104) PM: 3 rd professional course (14:00-16:00, National Demonstration Center for Mechanical-electrical-hydraulic Integrated education) Weather: Temperature:	<i>17th July</i> AM: 4 th cultural course (09:00-11:35, College of International Education building, room 104) PM: 4 th professional course (14:00-16:00, School of Mechanical Engineering, room J3) Weather: Temperature:	<i>18th Julyt</i> AM: 5 th cultural class (09:00-11:35, College of International Education building, room 104) PM: 5 th professional course (14:00-16:00, Key Laboratory of Common Technology for Aviation Self Lubricating Joint Bearings) Weather: Temperature:
<i>19th July</i> Cultural study: Shanhaiguan+Laolongtou(10 person) Weather: Temperature:	<i>20th July</i> Cultural study: Beidaihe(10 person) Weather: Temperature:	<i>21st July</i> AM: 6 th class(09:00-11:35, College of International Education building, room 104) PM: Chinese calligraphy (14:00-16:00, College of International Education building, room 104) Weather: Temperature:	<i>22nd July</i> AM: 7 th cultural course (09:00-11:35, College of International Education building, room 104) PM: Seal Cutting (14:00-16:00, College of International Education building, room 104) Weather: Temperature:	<i>23rd July</i> AM: 8 th cultural course+Paper-cutting (09:00-11:35, College of International Education building, room 104) PM: Report+Graduation Ceremony (14:00-17:00, College of International Education building, room 205) Weather: Temperature:	<i>24th July</i> AM: Trian from Qinhuangdao To Beijing PM: The Forbidden City Weather: Temperature:	<i>25th July</i> Daytime: Visit famous attractions in Beijing (subject to actual itinerary: possible attractions include the Great Wall, Tiananmen Square, National Museum, National Grand Theater, etc.) Evening: After dinner, transfer to Beijing Airport for return trip. Weather: Temperature:

Please note that the course lectures and cultural study tours may be rearranged as necessary according to the weather and other factors, and the final decision will be based on the situation at the time.

一、城市介绍

1、City Introduction

秦皇岛

秦皇岛是中国的一座以丰富的历史文化遗产而闻名的城市。它是由中国第一位皇帝秦始皇在公元前 215 年东巡时命名的。秦皇岛是几个主要旅游景点包括北戴河风景区、山海关古城、雁湖、黄金海岸、秦皇岛奥林匹克体育中心、峡谷、南戴河国际娱乐中心、秦皇岛野生动物园、乐岛海洋公园、新澳大利亚海底世界、鸽子窝公园、昌黎县生态农业观光园和北戴河渔业社区景区。

秦皇岛的气候属于暖温带，位于半湿润地带，以季风气候为特征。受海洋影响较大，气候温和，春季少雨，夏季温暖，无酷热，秋季凉爽晴朗，冬季漫长寒冷，适合旅游，尤其是在夏季。

Qinhuangdao

Qinhuangdao is a city in China that is known for its rich historical and cultural heritage. It was named by the first emperor of China, Qin Shihuang, during his eastern tour in 215 BC. Qinhuangdao is home to several major tourist attractions, including the Beidaihe Scenic Area, the Shanhaiguan Ancient City, Yan Lake, the Gold Coast, the Qinhuangdao Olympic Sports Center, the Canyons, the Nandaihe International Amusement Center, the Qinhuangdao Wildlife Park, the LeDao Ocean Park, the Xinao Underwater World, the Dove Nest Park, Changli County Ecological Agricultural Tourism Park and Beidaihe Fishing Community Scenic Area.

The climate of Qinhuangdao belongs to the warm temperate zone, located in the semi-humid zone, and is characterized by a monsoon climate. Influenced greatly by the ocean, the climate is mild with little rain in spring, warm summers without excessive heat, cool and sunny autumns, and long, cold winters that are suitable for tourism, especially during the summer months.



北京市

北京市，简称“京”，中华人民共和国的首都及直辖市，是中国的政治、文化、科技、教育、军事和国际交往中心。北京是拥有三千余年建城历史、八百六十余年建都史的历史文化名城。辽、金、元、明、清五个朝代在此定都。北京荟萃了自元明清以来的中华文化，拥有众多历史名胜古迹和人文景观，拥有 8 项世界遗产，是世界上拥有文化遗产项目数最多的城市。

Beijing

Beijing, referred to as "Jing", is the capital and municipality of the People's Republic of China. It is China's political, cultural, scientific, educational, military and international exchange center. Beijing is a historical and cultural city with a history of more than 3,000 years and a history of more than 860 years as a capital. Five dynasties, Liao, Jin, Yuan, Ming and Qing, established their capitals here. Beijing is a collection of Chinese culture since the Yuan, Ming and Qing dynasties, with many historical sites and cultural landscapes, and 8 world heritage sites. It is the city with the most cultural heritage projects in the world.



二、学校介绍

2、School Introduction

燕山大学

燕山大学是全国重点大学，河北省重点支持的国家一流大学 and 世界一流学科建设高校，北京高科大学联盟成员。燕山大学源于哈尔滨工业大学，前身为东北

重型机械学院，是原机械工业部直属高校，1978 年被确定为全国重点高等院校。1985 年至 1997 年学校整体南迁秦皇岛市，更名为燕山大学。

学校设有 12 个博士后流动站，14 个博士学位一级学科，3 个博士专业学位类别，拥有 5 个国家重点学科和 16 个省级重点学科，工程学、材料科学、化学、计算机科学、环境科学与生态学等 5 个学科进入 ESI 排名全球前 1%。

学校建有亚稳材料制备技术与科学国家重点实验室、冷轧板带装备及工艺国家工程技术研究中心、先进制造成形技术及装备国家地方联合工程研究中心、极端条件下机械结构等国家级科研平台。

学校师资力量雄厚，目前有中国科学院院士 3 人，中国工程院院士 2 人，国家“万人计划”入选者 7 人，“长江学者奖励计划”特聘教授、“长江学者奖励计划”讲席教授、“长江学者奖励计划”青年学者人选 17 人，国家杰出青年、优秀青年科学基金获奖者 27 人。

燕山大学积极推进教育对外开放，构建全球国际交流与合作网络，与 30 多个国家和地区的 100 余所国(境)外高水平大学和科研机构建立了友好合作关系，在中外合作办学、师生交流、科学研究等方面开展长期、广泛的合作。学校积极响应国家“一带一路”倡议，全面实施国际化发展战略，致力于培养更多具有“家国情怀、国际视野和全球竞争力”的国际化人才，不断提升学校国际影响力和教育对外开放水平。

燕山大学所在的河北省秦皇岛市，是国家历史文化名城。这里风光秀美、气候宜人，森林覆盖率达 54%，具有“林在城中，城在林中”的优美城市风貌，是闻名遐迩的天然氧吧和避暑胜地。欢迎国际学生申请燕山大学！

Yanshan University

Yanshan University is a nationally recognized key university jointly established by the People's Government of Hebei Province, the Ministry of Education, the Ministry of Industry and Information Technology. It is also a prominent member of the Cooperation Consortium of Beijing High Technology Universities.

The university spans 266.67 hectares, with a building area of 1.25 million square meters. Currently, 40,000 students are enrolled in general higher education. The university employs 3,200 faculty and staff members, including 2,200 full-time

teachers, 568 of whom are professors and 678 are associate professors. Among the faculty, 538 serve as doctoral supervisors. The faculty includes 3 academicians of the Chinese Academy of Sciences, 2 academicians of the Chinese Academy of Engineering, 1 member of the State Council's discipline appraisal group, 7 recipients of the National "Ten Thousand Talents Program," 17 distinguished professors, chair professors, and young scholars from the "Changjiang Scholars Program," and 27 recipients of the National Science Fund for Distinguished Young Scholars and Excellent Young Scientists Fund.

Yanshan University has 12 postdoctoral stations, 14 doctoral first-level disciplines, 2 doctoral degree categories, 30 master's first-level disciplines, 19 master's degree categories, and 73 undergraduate majors, fostering a disciplinary pattern of common development in 9 categories: engineering, economics, law, education, literature, science, management, arts, and interdisciplinary studies. It boasts 5 national key disciplines, 5 defense characteristic disciplines, and 16 provincial key disciplines, with 5 disciplines—engineering, materials science, chemistry, computer science and environmental science and ecology—ranking in the top 1% of ESI globally. In the fourth round of national discipline assessment, 8 disciplines achieved B level or above, with mechanical engineering ranked A-, in the top 10% nationwide, and materials science and engineering ranked B+, in the top 20% nationwide.

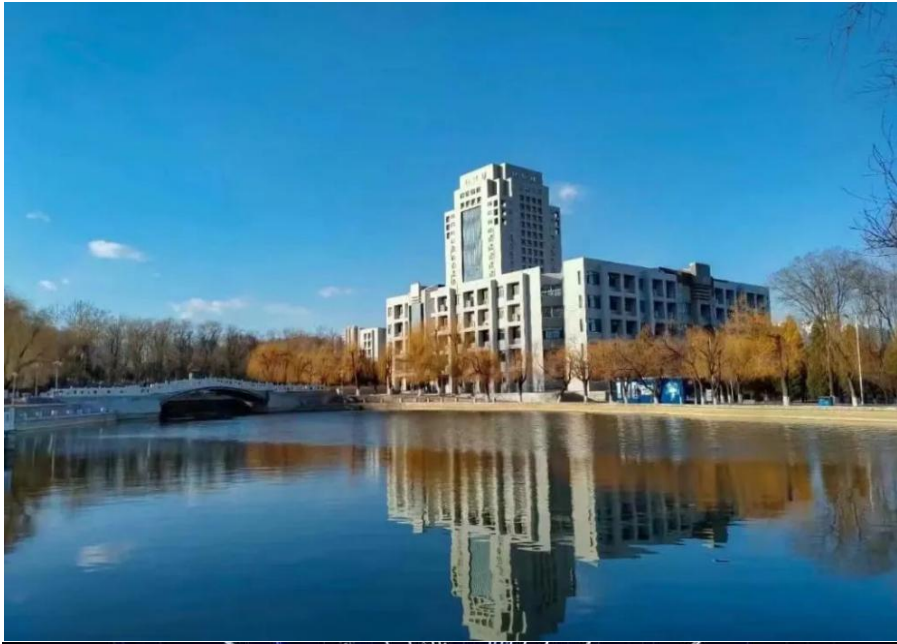
The school has established state key laboratories: the State Key Laboratory of Metastable Materials Science and Technology, the National Key Laboratory of Lifting Machinery Key Technology, the National Engineering Research Center for Equipment and Technology of Cold Strip Rolling, the National-Local Joint Engineering Research Center for Advanced Manufacture Forming Technology and Equipment, the National Innovation Talent Training Demonstration Base, the International Science and Technology Cooperation Base, the Provincial-Ministerial Joint Innovation Center, the National Technology Transfer Demonstration Institution, 4 Hebei Provincial Joint Innovation Centers, 60 provincial-ministerial science and technology innovation platforms (including those jointly built with external units), and 26 provincial-ministerial social science research bases. It also hosts a national university science and technology park and Yanshan University Press.

Yanshan University actively promotes the opening-up of education, building a high-quality global core partnership network. It has established cooperative relationships with over 100 high-level universities and research institutions in more than 30 countries and regions, engaging in long-term and extensive collaboration in joint education programs, faculty and student exchanges, and scientific research. The university actively responds to the national "Belt and Road" initiative, fully implementing an international development strategy. It is committed to cultivating more international talents with a sense of national responsibility, global vision, and competitiveness, continually enhancing the university's international influence and level of educational openness.

YSU values and promotes the opening-up of education to the outside world and builds a global network of international exchanges. The university has established cooperative relationships with over 100 high-level universities and scientific research institutions in more than 30 countries and regions to carry out a wide range of programs such as joint education, teacher exchanges and scientific research. In support of China's Belt and Road Initiative, YSU implements an international development strategy and is committed to cultivating talents with global perspectives and competitiveness in order to improve the university's international influence and its level of educational opening-up.

Qinhuangdao City, Hebei Province, where Yanshan University is located, is a national historical and cultural city. Qinhuangdao City has long been known as summer resort. It is "a city in the forest" or "forest in the city" and enjoys a reputation for its scenic beauty with green lands and blue waters.

Welcome to Yanshan University.







三、景色介绍

3、Scenery Introduction

①山海关

山海关炮台位于长城和渤海的交汇处，是中国丰富历史和重要意义的见证。这座堡垒被称为“天下第一门”，体现了中国古代军事力量的强大和宏伟。

山海关建于明朝，是抵御北方游牧侵略者的重要防御点。它的战略位置，一边是大海，另一边是高耸的悬崖，使其成为一道几乎坚不可摧的屏障。堡垒的墙

壁、塔楼和大门的设计可以抵御最强大的围攻，而周围的景观为伏击和防御提供了自然优势。

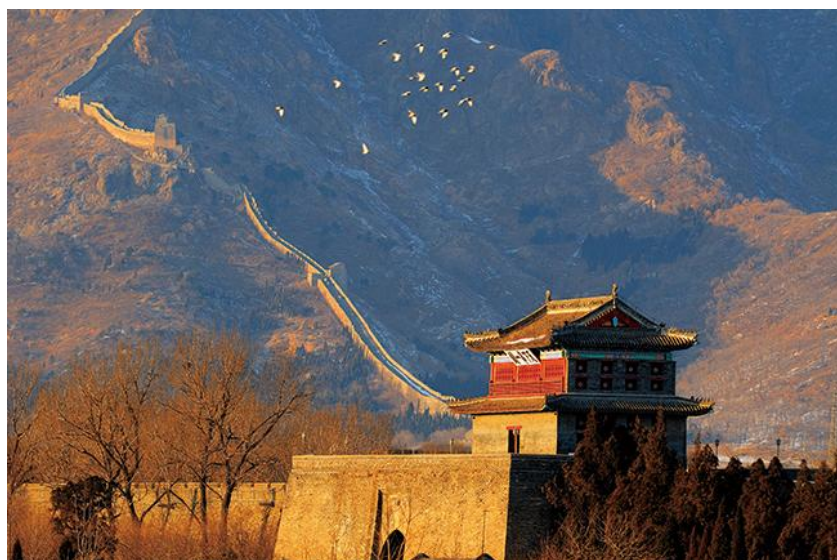
今天，山海关要塞仍然是一个受欢迎的旅游目的地，吸引着来自世界各地的游客前来惊叹其古老的建筑，重温过去的英雄事迹。无论是对历史、文化感兴趣，还是只是欣赏古代防御工事的美丽，参观山海关要塞一定是一次难忘的经历。

①Shanhaiguan

The Shanhaiguan Fort is located at the junction of the Great Wall and the Bohai Sea, serving as a testament to China's rich history and significant heritage. This fortress, known as the "First Pass Under Heaven," exemplifies the strength and grandeur of ancient Chinese military power.

Built during the Ming Dynasty, Shanhaiguan was a crucial defense point against northern nomadic invaders. Its strategic location, with the sea on one side and towering cliffs on the other, made it an almost impregnable barrier. The design of its walls, towers, and gates was capable of withstanding the most powerful sieges, while the surrounding landscape provided natural advantages for ambushes and defense.

Today, the Shanhaiguan Fortress remains a popular tourist destination, attracting visitors from around the world who come to marvel at its ancient architecture and relive the heroic deeds of the past. Whether one is interested in history and culture or simply appreciating the beauty of ancient fortifications, a visit to Shanhaiguan Fortress is sure to be an unforgettable experience.





②老龙头

山海关老龙头位于山海关城南 5 公里的滨海高地，这个基础平台的基石嵌入渤海，形成一个插入渤海的半岛。像一条龙一样，长城从这里插入大海，海浪起伏，故名“老龙头”。明朝十四年（1381 年），“总兵徐达在燕山驻兵，修永平、32 关岭。”山海关修建了长城，山海关城以及长城的起点在老龙头的位置。从那时起直到民国时期，军事防御工程的建设从未停止过，由海石城、靖鹵台、南海口关、澄海楼、宁海城、滨海长城、龙营组成的军事工程，使得这个海防堡垒形成了完整的陆海防御体系。清初，为防止敌军从海上进攻，清政府在沿海地区实行严格的海禁政策，直到康熙二十三年才废除。1840 年鸦片战争期间，英法军舰闯入中国内海，在老龙头附近出现，政府在老龙头加强海防，修建了海防炮台。咸丰、光绪年间，清政府加强防御，频繁调动军队驻扎。1900 年，八国联军从老龙头登陆山海关，强大的海军炮火摧毁了老龙头的防御建筑。长城防御工事严

重受损，在第二次世界大战期间，在老龙头沿海区域修建了营地，不允许中国人进入，只能撤退。1985 年，老龙头的长城得以修复，2008 年，老龙头的军事防御建筑恢复到原来的状态。历代以来，老龙头一直是英雄的象征。清朝康熙、雍正、乾隆和嘉庆年间，历代皇帝都曾登临老龙头，留下了许多著名的诗篇。

②Laolongtou

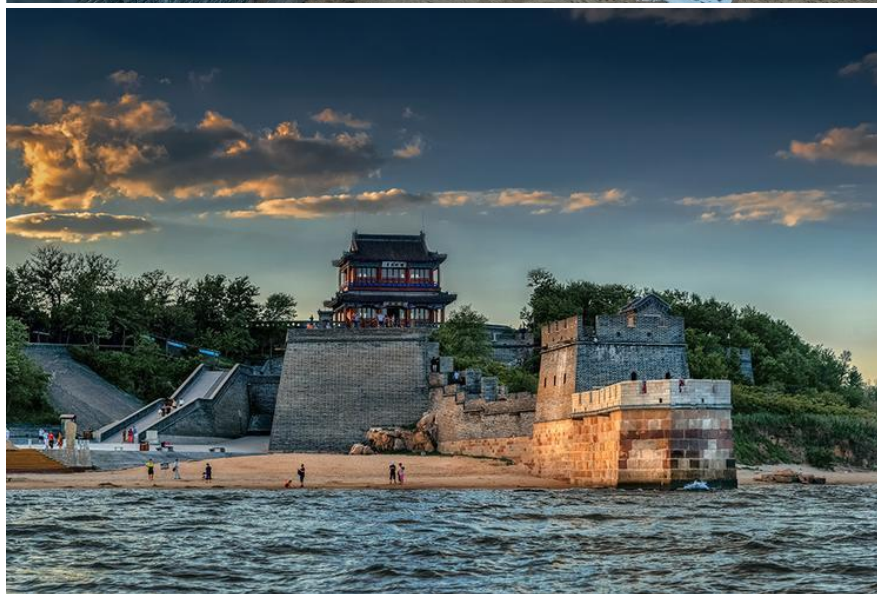
Old hydrants in Shanhaiguan 5 km south of the high sea floor, this cornerstone of the base platform scales angle formed Peninsula inserted itself in the Bohai Sea. Like a dragon, the Great Wall, this will lead inserted into the sea, the sea waves stir ups and downs, so named after the "old hydrants." Ming-14 years (1381), "General Xu Da, the Yanshan troops eBay, Xiu Yong Ping, 32, Guan Ling sector." Shanhaiguan construction of the Great Wall, Shanhaiguan Guan City, the Great Wall and the starting point lead in the old location. From that beginning until the end of World-old leading military defense on the construction has not stopped, by the sea Shicheng, Jing Krupp Taiwan, South Haikou customs Chenghai floor, Ninghai city, coastal Great Wall, Long-battalion comprised of military engineering, which makes the sea a defensive fortress complete land and sea defense work Cheng system.

Early Qing Dynasty, in order to prevent invaders from the sea offensive Yijun, the Qing government in the coastal areas of Maritime strict policy forbidding the abolition of Kangxi 23 years. In 1840 the British Opium War, British and French warships intruded into China's internal seas, in the vicinity of the old hydrants spotted, the government Jizhou heavily-old leader of coastal defense, and build a coastal defense artillery. The Xian Feng, Emperor Guangxu in the defense tight, the Qing government to mobilize the army barracks frequent.

In 1900, the Eight-Power Allied Forces invaded Shanhaiguan States warship from the old landing leading to strong army fire Chenghai floor, shelling old leader, the Great Wall defense building was severely damaged. And in the old coastal area leading to the construction of the Garrison Ying Pun, drawn boundary, do not allow Chinese people to have to withdraw only during the Second World War.

In 1985, the old wall leading to repair, in calendar 2008, the old building to its original conditions leading military defense again.

Leading the ages old hero is brought by the abbreviated stronghold, is located concept of the Range Rover shown, the Qing Dynasty Emperor Kangxi, Yongzheng, Qianlong and Jiaqing, light and back to the emperor during Shengjing (now Shenyang) temple mound, the Shanhaiguan, leading to the roof of the old, obsessed the sentence, left many famous poems.





③秦皇岛博物馆

秦皇岛博物馆是展示秦皇岛历史文化的综合性博物馆，项目占地 40 亩，建筑面积为 26553.6 平方米，展览面积 6049 平方米，文物库房及研究用房面积 3257 平方米、公共空间面积 5893 平方米。主体建筑共分四层，地下一层地上三层。核心功能分区为主题展览区、临时展览区、公共服务区、文化休闲区、办公区等。

市博物馆主题展览《海岳明珠》按照历史时间顺序设立“山海文明”“古国故事”“沧海碣石”“金戈古道”“多元并蓄”“长城重镇”“百年风云”七个展示内容以重要历史节点、重要历史人物和珍贵文物为依托，凝练和凸显了不同时期秦皇岛独有地域文化和城市精神。展览共展出文物展品 1180 件组，展品丰

富、传承明晰，从先秦时期的青铜器、两汉时期的陶器，唐宋元明时期的瓷器至明清时期的长城构件，无不凝聚着古代劳动人民的勤劳和智慧，这些展品串联起秦皇岛地区浩瀚而又厚重的历史。

③Qinhuangdao Museum

Qinhuangdao Museum is a comprehensive museum showcasing the history and culture of Qinhuangdao. The project covers an area of 2.67 hectares, with a building area of 26,553.6 square meters, an exhibition area of 6,049 square meters, a storage and research area of 3,257 square meters, and a public space area of 5,893 square meters. The main building is divided into four floors, one underground and three above ground. The core functional areas include the thematic exhibition area, temporary exhibition area, public service area, cultural leisure area, and office area.

The museum's thematic exhibition *Pearl of Sea and Mountain* is arranged in chronological order, featuring seven sections: "Civilization of Mountains and Seas," "Stories of Ancient States," "Cang Sea and Jieshi," "Martial Path," "Diverse and Inclusive," "Great Wall Garrison Town," and "Centennial Events." These sections highlight key historical moments, figures, and precious artifacts, encapsulating and emphasizing the unique regional culture and urban spirit of Qinhuangdao during different periods. The exhibition displays a total of 1,180 groups of cultural relics, with a rich and clear lineage. From the bronzes of the pre-Tai period and pottery of the Han dynasties, to the porcelain of the Tang, Song, Yuan, Ming, and Qing dynasties, and Great Wall components of the Ming and Qing dynasties, each piece reflects the diligence and wisdom of the ancient people. These exhibits weave together the vast and profound history of the Qinhuangdao region.



④故宫

北京故宫（The Imperial Palace）位于中国北京市，是中国明清两代的皇家宫殿，旧称紫禁城，位于北京中轴线的中心。故宫以三大殿为中心，占地面积约 72 万平方米，建筑面积约 15 万平方米，有大小宫殿七十多座，相传故宫一共有 9999.5 间，实际据 1973 年专家现场测量故宫有房间 8707 间。

故宫是世界上现存规模最大、保存最为完整的木质结构古建筑群之一。1961 年，北京故宫被公布为第一批全国重点文物保护单位。1987 年被列为世界文化遗产。

④The Imperial Palace

The Imperial Palace in Beijing is located in Beijing, China. It was the royal palace of the Ming and Qing dynasties in China. It was formerly known as the Forbidden City and is located at the center of Beijing's central axis. The Forbidden City is centered on the three main halls, covers an area of about 720,000 square meters, and has a construction area of about 150,000 square meters. There are more than 70 palaces of various sizes. It is said that the Forbidden City has a total of 9999.5 rooms. According to on-site measurements by experts in 1973, the Forbidden City actually has 8707 rooms.

The Forbidden City is one of the largest and most well-preserved ancient wooden structure complexes in the world. In 1961, the Forbidden City in Beijing was announced as the first batch of national key cultural relics protection units. In 1987, it was listed as a World Cultural Heritage.



⑤长城

故长城（The Great Wall），又称万里长城，是中国古代的军事防御工事，是一道高大、坚固而且连绵不断的长垣，用以限隔敌骑的行动。长城不是一道单纯孤立的城墙，而是以城墙为主体，同大量的城、障、亭、标相结合的防御体系。依据长城形成了长城文化。是弘扬中华优秀传统文化的重要力量。

长城修筑的历史可上溯到西周时期，发生在首都镐京（今陕西西安）的著名典故“烽火戏诸侯”就源于此。春秋战国时期，列国争霸，互相防守，长城修筑进入第一个高潮，但此时修筑的长度都比较短。秦灭六国统一天下后，秦始皇连接和修缮战国长城，始有万里长城之称。明朝是最后一个大修长城的朝代，人们所看到的长城多是此时修筑。

1987年12月，长城被列为世界文化遗产。2020年11月26日，国家文物局发布了第一批国家级长城重要点段名单。

⑤The Great Wall

The Great Wall, also known as the Wanli Great Wall, is an ancient Chinese military fortification. It is a tall, solid and continuous long wall used to limit the movement of enemy cavalry. The Great Wall is not a simple isolated wall, but a defense system with the wall as the main body and a large number of cities, barriers, pavilions and signs. The Great Wall culture was formed based on the Great Wall. It is an important force for promoting the excellent traditional Chinese culture.

The history of the construction of the Great Wall can be traced back to the Western Zhou Dynasty. The famous allusion "playing with princes with beacon fire" in the capital Haojing (now Xi'an, Shaanxi) originated from this. During the Spring and Autumn Period and the Warring States Period, the countries competed for hegemony and defended each other. The construction of the Great Wall entered its first climax, but the length of the construction at this time was relatively short. After Qin conquered the six kingdoms and unified the world, Qin Shihuang connected and repaired the Great Wall of the Warring States Period, and it was called the Wanli Great Wall. The Ming Dynasty was the last dynasty to repair the Great Wall, and most of the Great Wall people see was built at this time.

In December 1987, the Great Wall was listed as a World Cultural Heritage. On November 26, 2020, the State Administration of Cultural Heritage released the first list of important national sections of the Great Wall.



四、专业课程介绍

4、Professional course presentation

①金属板带材轧制智能化装备

金属板带材轧制是通过轧机对金属坯料施加压力，使其产生塑性变形，从而获得所需厚度、宽度和性能的板带材的加工工艺。传统轧机依赖机械调整和人工经验操作，厚度和板形控制精度较低；多功能四辊智能实验轧机前后分别配置激光测厚仪和自主研发的板形仪，具有轧机牌坊间隙在线监测功能，拥有轧机动特性在线监测系统。该轧机具备液压压下和弯辊系统，采用双电机单独传动，工作辊可水平移动，可进行板带冷热轧制、大张力轧制、DC 和 DS 轧制、异步轧制、变厚度轧制、在线换辊等实验，并可进行板形板厚控制、轧机装备动特性等领域的研究。

本次课程主要教大家了解多功能四辊智能实验轧机结构组成和功能实现。

①Modernisation equipment for metal plate and strip rolling

Rolling of metal plates and strips is a processing technology that applies pressure to the metal billet through rolling mill to produce plastic deformation, so as to obtain the required thickness, width and properties of the plates and strips. Traditional rolling mill relies on mechanical adjustment and manual experience operation, thickness and plate shape control accuracy is low. The multifunctional four-roll intelligent

experimental mill is equipped with laser thickness gauge and self-developed plate shape gauge at the front and rear respectively, has the function of online monitoring of rolling mill gap, and has the online monitoring system of rolling machine characteristics. The mill is equipped with hydraulic press down and bending roll system, adopting double motor separate transmission, the working roll can move horizontally, and it can carry out the experiments of hot and cold rolling of plate and strip, high tension rolling, DC and DS rolling, asynchronous rolling, variable thickness rolling, on-line change of rolls, etc., and it can also carry out the research in the fields of control of plate shape and thickness, and dynamic characteristics of rolling mill equipment.

This course mainly teaches you to understand the multifunctional four-roll intelligent experimental mill structure and function implementation.



②液压之美：力与流的交响

《液压之美：力与流的交响》课程，带您探索流体力学与工程艺术的融合之境。从帕斯卡定律的精妙传导，到液压系统行云流水的能量转换，我们将解析四足机器人、挖掘机臂膀等经典案例中，微小压力如何凝聚成万吨巨力。透过可视化实验与动态模型，您将领略液压管路中液体脉动的韵律美，感受精密密封与机械结构协同演绎的工业诗篇。无论是机械设计爱好者，还是工程专业学子，都能在压力与流量的调控艺术中，读懂现代工业背后的流体智慧。

②The Beauty of Hydraulics: The Symphony of Force and Flow

This course, "The Beauty of Hydraulics: The Symphony of Force and Flow", invites you to explore the integration of fluid mechanics and engineering art. Starting from the exquisite transmission of Pascal's law, we will analyze how the energy in a

hydraulic system is converted smoothly. Through classic cases like quadruped robot and the arms of excavators, we'll explain how a tiny pressure can be aggregated into an enormous force of ten thousand tons. With visual experiments and dynamic models, you will appreciate the rhythmic beauty of the pulsating liquid in hydraulic pipelines and feel the industrial poetry co-performed by precise seals and mechanical structures. Whether you are a mechanical design enthusiast or an engineering student, you can understand the fluid wisdom behind modern industry in the control art of pressure and flow.



③燕山大学机器人化智能装备

燕山大学机器人智能装备领域聚焦前沿技术创新与产业应用，致力于研发高性能机器人系统及智能化装备。研究方向涵盖工业机器人、服务机器人、特种机器人等，重点突破智能感知、自主决策、精准控制等关键技术。团队结合人工智能、物联网与先进制造技术，推动装备在工业自动化、智能制造、医疗健康等场景的深度应用。依托国家级科研平台，学校与国内外知名企业紧密合作，促进产学研深度融合，培养复合型创新人才，为我国高端装备智能化升级提供核心技术支撑，助力“中国制造 2025”战略实施。

本课堂会让大家了解燕山大学在机器人智能装备领域的一些成果。

③Yanshan University Robotized Intelligent Equipment

The field of Robotic Intelligent Equipment at Yanshan University focuses on cutting-edge technological innovation and industrial applications, dedicated to developing high-performance robotic systems and intelligent devices. Research areas include industrial robots, service robots, and special-purpose robots, with emphasis on breakthroughs in key technologies such as intelligent sensing, autonomous decision-making, and precision control. Integrating AI, IoT, and advanced manufacturing, the team advances applications in industrial automation, smart

manufacturing, and healthcare. Leveraging national-level research platforms, the university collaborates closely with global industry leaders to foster industry-academia-research synergy, cultivate interdisciplinary talent, and provide core technological support for China's intelligent transformation of high-end equipment, contributing to the "Made in China 2025" initiative.

This course will introduce you to some of Yanshan University's achievements in the field of robotic intelligent equipment.



④超声牙齿洁治动力特性

牙周炎作为一种常见口腔疾病会引发一系列危害健康的症状，如牙齿脱落、加重糖尿病、诱发心脏病等。全球近 50%的成年人都受此困扰。牙结石（矿化牙菌斑）和牙菌斑是引发牙周炎的主要因素，清除这些沉积物是临床预防的关键策略。然而仅靠传统刷牙方式难以去除牙周沉积物，临床亟需更高效的治疗技术。

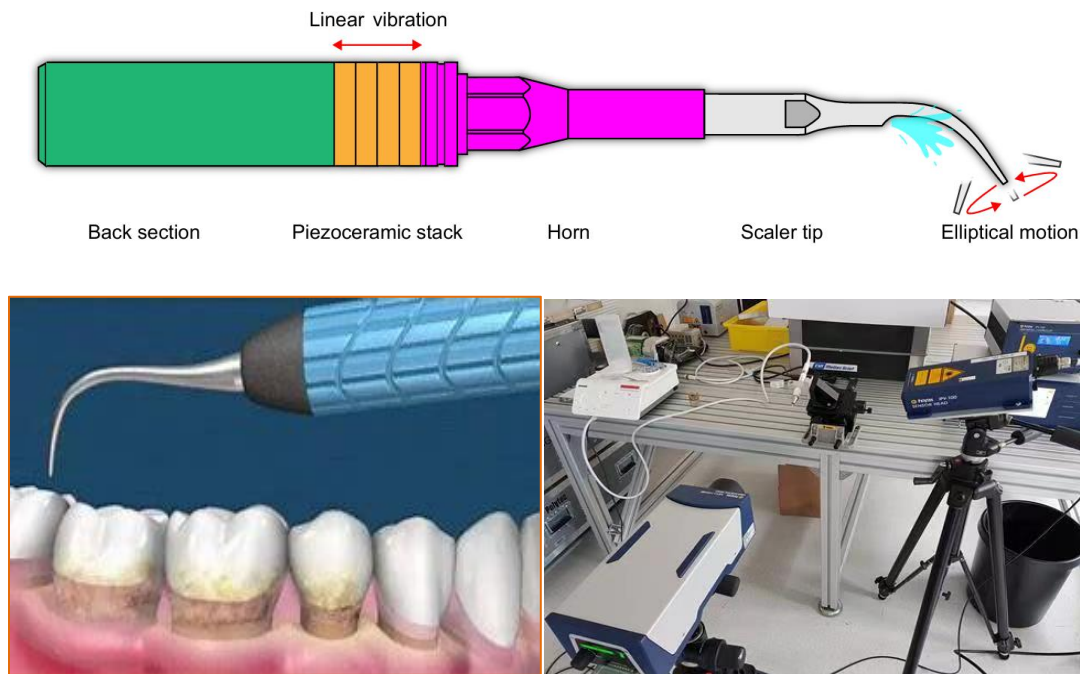
超声洁牙作为牙周病学应用的核心技术，近 70 年来在牙科领域广泛应用，能有效清除牙结石和菌斑。如图 1 所示，该设备主要由超声发生器、换能器、变幅杆和工作尖组成。超声发生器产生的高频交流电（25 kHz—42 kHz）通过压电或磁致伸缩换能器转化为机械振动，由固有频率与激励频率相近的变幅杆放大振幅。这种线性振动经弯曲工作尖转化为椭圆振动并进一步放大，高频椭圆振动可使牙结石破裂粉碎，再通过设备水流冲走，同时空化效应也有助于清除菌斑。因此深入研究工作尖运动轨迹对探索其清除效率至关重要。

④Dynamic characteristics for ultrasonic scaling

Periodontitis as a common mouth disease will cause a series of symptoms affecting health, such as losing teeth, exacerbating diabetes, inducing cardiopathy and so on. There are nearly 50% adults suffer this kind of trouble globally. Calculus (mineralized dental plaque) and dental plaque are major contributors to periodontitis, and removing

these deposits is a key clinical strategy for prevention. However, periodontal deposits are difficult to remove with traditional brushing alone, necessitating more effective techniques in clinical settings.

Ultrasonic scaling as a primary technology applied in periodontics, widely used in dentistry for nearly 70 years, is able to remove calculus and plaque efficiently. This instrument is mainly consisted of ultrasonic generator, transducer, horn and tip, as shown in Fig. 1. A high frequency AC (between 25 and 42 kHz) generated by the ultrasonic generator is converted into a mechanical vibration with piezoelectric transducer or magnetostrictive transducer, and vibration amplitude is amplified by the horn whose natural frequency approximately equals to the excitation frequency. This linear vibration is changed as an elliptical vibration and further enlarged by the curved tip. The dental calculus will be cracked and smashed with this high frequency elliptical vibration and further removed by the water flow from the instrument, meanwhile cavitation also contributes well to eliminate plaque. Therefore, the tip trajectory is fully investigation to explore its effect to removal efficiency.



⑤螺纹紧固件耐疲劳-防松动性能协同优化技术

针对螺纹紧固件在交变载荷下易疲劳断裂和松动的难题,首次分析了造成两种失效的应力,提出了理想应力分布模型。采用螺距差与过盈量双参数调控,实

现了性能协同优化。最终开发出以应力指导的协同优化设计方法，可针对不同工程需求设计兼具优异耐疲劳和防松性能的紧固件，解决了传统强化手段成本高且效果有限的问题。

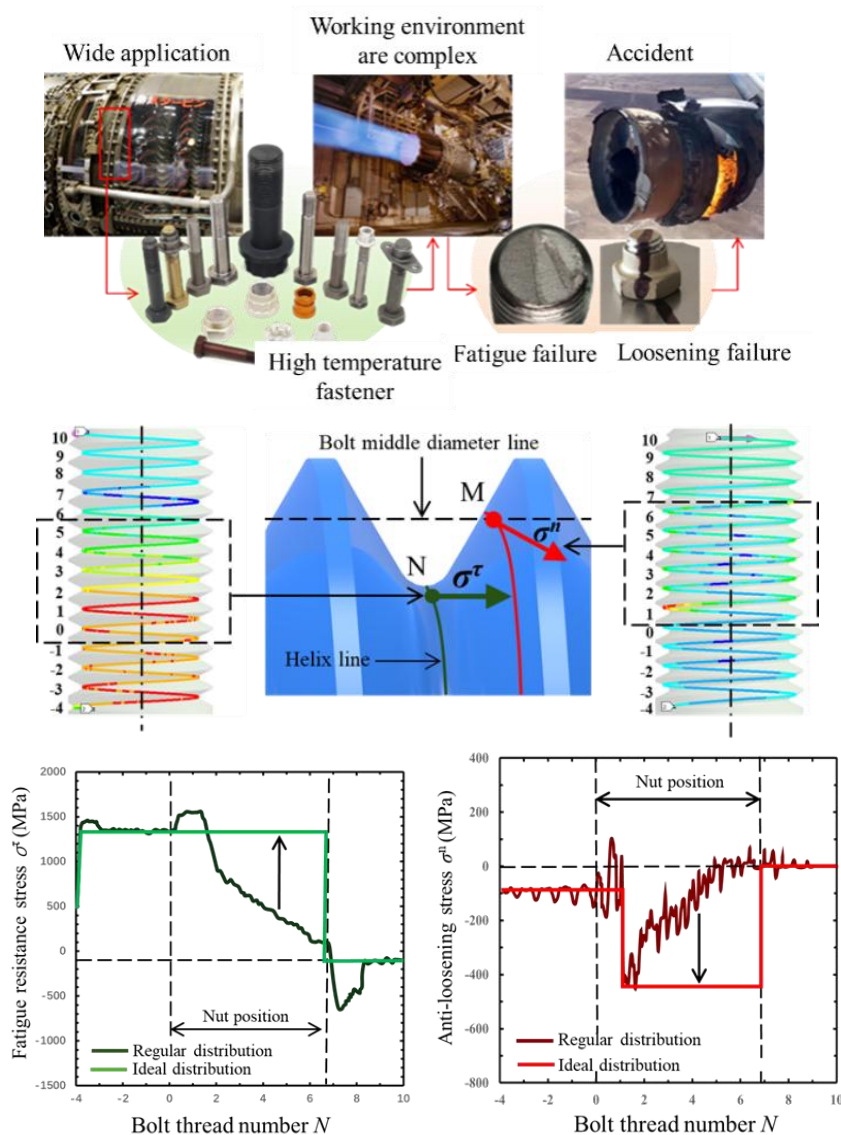
⑤A Novel Stress-guided Method to Simultaneously Improve Fatigue Resistance and Anti-loosening of Threaded Fastener

Threaded fasteners are prone to fatigue and loosening failure under alternating external forces. In ordinary fasteners, stress is concentrated at the first engaged thread, and fractures occur here frequently. At present, the main approach to improve fatigue resistance is to enhance material strength by surface treatments or developing new materials, which increases the costs yet still cannot completely prevent fractures. Conventionally used frictional anti-loosening methods, although being effective, tend to increase the bolt stress with a negative impact on fatigue resistance.

Thus, achieving simultaneous optimization of fatigue and anti-loosening resistance is challenging. Our study is the first to analyze two stresses that affect fatigue resistance and anti-loosening ability. The stresses distribution defects causing failures of ordinary fasteners were identified. Based on these findings, we propose an ideal distribution pattern of both stresses.

Using pitch difference fastener, we experimentally and analytically proved that this stress patterns indeed yield superior performance. It was also revealed that manipulating only one geometric parameter (pitch difference) did not allow achieving simultaneous fatigue and anti-loosening improvement because these two respective stresses interfered with each other.

Next, by adjusting two geometric features of a fastener (pitch difference and interference volume) joint enhancement of fatigue and loosening resistance was achieved. Finally, stress-guided optimization method was proposed to design different types of fasteners with desired anti-loosening and fatigue performance for a variety of engineering applications.



五、文化课程介绍

5、Cultural course presentation

①宝贵的非物质文化遗产——中国书法

中国书法是中国传统艺术中的重要组成部分，源远流长，历史悠久。它不仅是一种文字的书写方式，更是一种艺术表达和文化遗产的载体。中国书法的发展可以追溯到数千年前的甲骨文和金文，经过漫长的发展逐步形成了篆书、隶书、楷书、草书和行书等多种风格。书法作为艺术形式，强调笔墨的运用和意境的表达。书法家通过笔墨的运动，展现出文字之外的艺术美感，追求“意在笔先，神在墨先”的境界。

在中国传统文化中，书法不仅是一种技艺，更是一种修身养性的重要途径，被视为一种精神的表达和修养的象征。通过中国书法，人们不仅可以感受到文字的美感，还能体味到历史的沉淀和文化的底蕴，因此在中国文化传统中占据着极为重要的地位。

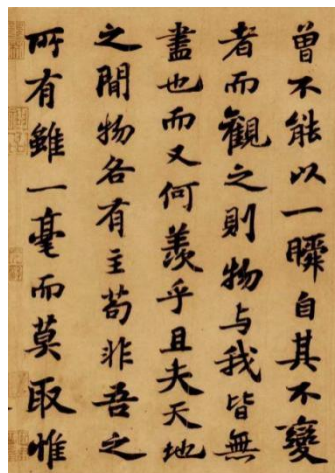
本课程带领同学们在笔墨间体验中国书法的魅力，在一笔一划中学会书写自己的中文名字。

①Valuable intangible cultural heritage -- Chinese calligraphy

Chinese calligraphy is an important part of Chinese traditional art with a long history. It is not only a way of writing, but also a carrier of artistic expression and cultural inheritance. The development of Chinese calligraphy can be traced back to the oracle bone script and gold script thousands of years ago. After a long development, various styles such as seal script, official script, regular script, cursive script and running script were gradually formed. As an art form, calligraphy emphasizes the use of pen and ink and the expression of artistic conception. Through the movement of pen and ink, calligraphers show the artistic beauty beyond words, and pursue the realm of "aiming at the pen first, and God first in ink".

In traditional Chinese culture, calligraphy is not only a skill, but also an important way to cultivate one's self. It is regarded as a symbol of spiritual expression and cultivation. Through Chinese calligraphy, people can not only feel the beauty of the words, but also appreciate the historical precipitation and cultural heritage, so it occupies an extremely important position in the Chinese cultural tradition.

This course enables students to experience the charm of Chinese calligraphy and learn to write their Chinese names with a single stroke.



②非遗传统文化之剪纸

剪纸，这一源自民间的艺术形式，蕴含着中华民族丰富的历史积淀和民族智慧。剪刀在红纸上的轻轻飞舞，就能绘制成一幅生动的作品。在剪纸的世界里，每一幅作品都是一段历史的缩影，一个故事的载体。它们或展现着古代神话的奇幻，或反映着民间生活的百态，或寄托着人们对美好生活的向往与追求。通过精湛的技艺和巧妙的构思，剪纸将文化的精髓凝聚于方寸之间。因此，欣赏剪纸，就是一次文化的深度之旅，它让人们在欣赏美的同时，也感受到了中国文化的深邃与博大。剪纸课将带领大家体验剪纸，并了解剪纸文化的历史 and 意义。

②Paper-cutting, one of Chinese Intangible Cultural Heritage

Paper cutting, an art form originating from folk traditions, embodies the rich historical heritage and wisdom of the Chinese nation. With the gentle dance of scissors on red paper, a vivid piece of art can be created. In the world of paper cutting, each piece is a microcosm of history and a vessel for storytelling. They either depict the fantasy of ancient myths, reflect the various aspects of folk life, or convey people's aspirations and pursuits for a better life. Through exquisite craftsmanship and ingenious designs, paper cutting condenses the essence of culture into a small space. Therefore, appreciating paper cutting is a profound cultural journey that allows people to enjoy beauty while experiencing the depth and vastness of Chinese culture. The paper cutting class will guide participants in experiencing paper cutting and understanding the history and significance of this cultural art.



③非物质文化遗产——京剧脸谱

京剧脸谱是京剧演员面部的**化妆图案**，是具有中国文化特色的特殊化妆方法，该艺术是中国传统文化的标识之一。

首先，让留学生们对京剧有了初步的认识京剧基础知识的讲解，包括京剧的起源、流派、角色分类以及脸谱的含义。随后，通过观看经典京剧片段，留学生们对京剧的唱腔、身段、表演有了直观的感受。之后在老师的指导下，留学生们亲手绘制了京剧脸谱，体验了从选色、勾线到上色的全过程。脸谱的每一种颜色、每一条线条都蕴含着深厚的文化意义，在绘制中逐渐理解了脸谱背后的文化象征。

③Intangible cultural heritage -- Peking Opera facial makeup

Peking Opera facial makeup is a makeup pattern of Peking Opera actors' faces and a special makeup method with China cultural characteristics. This art is one of the symbols of China traditional culture.

First of all, let the international students have a preliminary understanding of Peking Opera, and explain the basic knowledge of Peking Opera, including the origin, genre, role classification and the meaning of facial makeup.

Later, by watching the classic Beijing opera clips, the international students had an intuitive feeling about the singing, figure and performance of Beijing opera.

After that, under the guidance of the teacher, the foreign students drew Peking Opera masks by themselves, and experienced the whole process from color selection, cross-checking to coloring. Every color and line of Facebook contains profound cultural significance, and the cultural symbol behind Facebook is gradually understood in the drawing.



④非遗传统手工艺——篆刻

篆刻兴起于先秦，盛于汉，衰于晋，败于唐、宋，复兴于明，中兴于清。至今已有三千七百多年的历史。在篆刻艺术的学习中，主流的学习方法都是临摹汉印开始。“汉印”，并不是只有中国汉代时期的印章，而是从西汉到魏晋南北朝时期的主流印章的统称。汉印是一种饱满、质朴、严谨、气势雄壮的一种印，也是中国篆刻艺术最具代表的印章，表现了中华民族的文化风貌。

本次课程会教大家如何篆刻一枚印章。

④Intangible cultural heritage traditional crafts: Seal Cutting

Seal cutting rose in the pre-Qin dynasty, flourished in the Han Dynasty, declined in the Jin Dynasty, failed in the Tang and Song dynasties, revived in the Ming Dynasty, and flourished in the Qing Dynasty. It has a history of more than 3,700 years. In the study of seal-cutting art, the mainstream learning method is to copy the Han seal. "Han seal" is not only the seal of the Han Dynasty, but the general name of the mainstream seal from the Western Han Dynasty to the Wei, Jin, Northern and Southern Dynasties. The Han seal is a full, simple, rigorous, and majestic seal. It is also the most representative seal of Chinese seal-cutting art, which shows the cultural style of the Chinese nation.

This class will teach you how to cut a seal.



⑤非遗传统手工艺—拓印

拓印是对不同材质雕刻或石刻品表面的手工复制技术，其方法是将一张纸紧紧覆盖在作品上，用黑色或彩色材料拓印。

拓印前，需要做好准备工作。首先需要将目标物表面清理干净，以确保拓印的清晰度和质量。接着准备好墨、砚台、刷子等工具。拓印时，需要将纸张覆盖在目标物上，用刷子轻轻敲打或按压纸张，使纸张与碑帖表面紧密贴合。然后，将墨汁倒入砚台中，用墨刷蘸取适量的墨汁，在拓纸上均匀地涂抹。在涂抹墨汁时，需要注意控制墨的用量和涂抹的均匀度，以避免拓印出的文字或图案出现模糊或过黑的情况。

本课程带领同学们体验拓印的全过程，让大家了解拓印的工具材料、制作步骤和注意事项。

⑤Intangible cultural heritage traditional crafts: Rubbing

Rubbings are the technique of making manual copies of the surfaces of stone carvings or carvings of other materials by covering the object tightly with a piece of paper and rubbing it with black or colored materials.

First of all, you need to clean the surface of the pattern to ensure clarity and quality. Then prepare ink, ink stone, and brush. When rubbing, you need to cover the paper on the target and use a brush to tap or press the paper to make the paper closely fit the surface of the pattern. Then, pour the ink into the ink stone, dip the ink brush into the appropriate amount of ink, and apply it evenly on the target. When using the ink, you need to pay attention to controlling the amount of ink and the uniformity of application to avoid blurring or over-blackening of the pattern.

This class will lead you to experience one traditional cultural skill – Rubbing. You'll learn about the tools, materials, methods, and steps needed for rubbing, and you'll get to know the techniques of rubbing.



⑥非遗传统手工艺—漆扇

漆扇是一种非遗手工艺品，源于中国传统的手工艺文化，以扇子为载体，以天然大漆为主要原材料，使用漆艺中的“漂漆”技法，利用大漆不溶于水的特质，以点、甩、弹、划等手法，在水中绘出图案。以漆为笔，以扇为画，漆扇制作前先调配好相应的大漆颜料，再将空白的扇面浸入染缸，缤纷缥缈的色彩便跃然纸上。由于水流动的随机性，每个人的扇面都是独一无二的。本课程将带领同学们自己动手制作漆扇，让大家了解漆扇的制作过程、漂漆手法和注意事项，体验一半人为，一半天成的独特魅力。

⑥Intangible cultural heritage traditional crafts: Lacquer Fan

Lacquer fan is a kind of intangible handicrafts, which originates from the traditional Chinese handicraft culture. With the fan as the carrier and natural lacquer as the main raw material, it uses the "bleaching paint" technique in lacquer art and makes use of the insoluble characteristics of lacquer to draw patterns in water by means of dots, flings, flicks and strokes. With paint as the pen and fan as the painting, the corresponding paint pigments are prepared before the production of paint fans, and then the blank fan is immersed in the dye VAT, and the colorful and ethereal colors will appear on the paper. Due to the randomness of water flow, each person's sector is unique. This course will lead the students to make paint fans by themselves, let them understand the production process of paint fans, paint bleaching techniques and precautions, and experience the unique charm of half artificial and half natural.



六、学校住宿信息

6、Accommodation Information

学校有专门的留学生公寓，对留学生进行集中统一住宿管理。每个房间设有独立卫生间、24 小时热水淋浴、空调、冰箱、微波炉、电视、无线网络等设施；每个楼层设有公用厨房、公用全自动洗衣机等。

The University provide dormitory for international students. Unified accommodation management is adopted. Each room is equipped with independent toilet, 24-hour hot water shower, air conditioning, refrigerator, microwave oven, TV, wireless network and other facilities; each floor is equipped with a common kitchen and communal automatic washing machine.





七、就餐环境

7、Dinning Information

燕大西校区设有燕园餐厅、大榕树餐厅等多个用餐场所。特色小吃窗口为留学生提供多种口味的地方特色小吃，让留学生在读期间尽享中国丰富美味的饮食文化。西校区食堂一层设有清真餐厅。

There are many dining places on west campus, including Yanyuan Restaurant and Darongshu Restaurant. The canteen provides a variety of local snacks, where students

can enjoy the rich and delicious food. There is a Muslim restaurant on the first floor of the canteen on the west campus.

