北京交通大学援建泰国皇家理工大学

铁道工程、铁道运输专业

同意书

北京交通大学

泰国皇家理工大学

2011 年 6 月

委托方：泰国皇家理工大学

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泰国皇家理工大学（以下简称甲方）和北京交通大学（以下简称乙方），就甲方委托乙方援建“铁道工程、铁道运输两专业”诸项事宜达成一致意见，双方在平等互利的基础上签订本协议，具体条文如下：

1 项目内容

1.1 项目名称：

北京交通大学援建泰国皇家理工大学铁道工程和铁道运输专业合作项目

1.2 援建目标：

乙方协助甲方开设铁道工程系，支持其开设铁道工程专业和铁道运输专业，力争在 5 年内协助其建成铁道工程专业和铁道运输专业并实现自主教学，通过联合办学，深化双方友好合作，促进教育教学、科学研究广泛交流。

1.3 援建内容：见附件 1

1.4 工作语言：英语为主、双语教学、汉语为辅

1.5 项目时间

本协议的初始有效期为 5 年。期满之后由协议双方根据对援建专业的共同评估，并通过双方共同协商决定是否续签。

2 甲方职责和义务

2.1 审核并通过乙方提出的专业援建方案（附件 1）。

2.2 负责两个专业在泰招生工作，遴选泰方教师和学生来华留学，办理访问及留学人员来华护照及其他相关事宜，并负担泰方人员来华往返机票（包括燃油附加费和机场建设费）。合作期内吸收北京交通大学代表参与其对应专业教学委员会工作。

2.3 做好乙方教师赴泰访问、授课的邀请、接待工作，提供乙方所需的工作和生活环境与条件，保证援建项目在泰各项活动的顺利进行以及乙方人员在泰期间的安全。

2.4 协助乙方做好学员的管理工作，保证各项活动顺利进行以及学员在华期间的安全。

2.5 按本协议要求全额支付乙方援建专业所需费用。

2.6 留学人员来华学习期间需购买有关保险，生病所发生的医疗费用和个人消费由甲方人员自行承担。

2.7 监督、检查乙方援建合作项目组织实施情况以及履行本协议规定的其他有关义务。

2.8 甲方需要确保每个专业满足最低学生人数要求。

2.9 尊重乙方师资宗教信仰及风俗习惯。

3 乙方职责和义务

3.1 应甲方要求拟定专业援建方案（附件 1），并报请甲方核定。

3.2 负责两个专业的建设和学生、师资培养工作，遴选中方教师在华和赴泰授课，办理乙方人员赴泰护照及其他相关事宜，并负担乙方人员赴泰往返机票（包括燃油附加费和机场建设费）。合作期内派代表参与甲方对应专业教学委员会工作。

3.3 做好甲方留学人员来华访问、学习的邀请工作，提供甲方来华人员

所需的学习和生活环境与条件，保证援建项目在华各项活动的顺利进行以及甲方人员在华期间的安全。为甲方留学人员增开汉语语言、中国文化等课程。

3.4 根据双方审定的专业援建方案，认真做好项目的实施工作。

3.5 尊重甲方学员宗教信仰及风俗习惯。

3.6 依照有关规定，为来华参训学员办理人身意外伤害保险。

3.7 对甲方经留学培养合格人员发放结业证书或学位证书。

3.8 甲方学员在华学习期间食宿费用自理，乙方提供国际留学生公寓住宿环境，价格按照乙方内部协议成本价收取。

4 协议生效及其他

4.1 双方应严格执行本协议，如遇较大变更必须经双方协商一致解决。

4.2 本协议自签字之日起生效，有效期至甲、乙双方履行完毕本协议所规定的一切义务之日止。

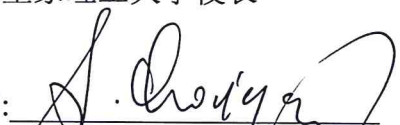
4.3 本协议未尽事宜，由甲、乙双方协商解决，具体专业援建协调工作，由甲乙双方针对每个专业各派三位代表组成常设委员会协商解决。

4.4 本协议于 2011 年 6 月 8 日在北京签订，一式肆份，甲、乙双方各执贰份（其中壹份中文，壹份英文），肆份文本具有同等效力，如发生歧义，以中文协议为准。

签字: 

日期: 08 June 2011

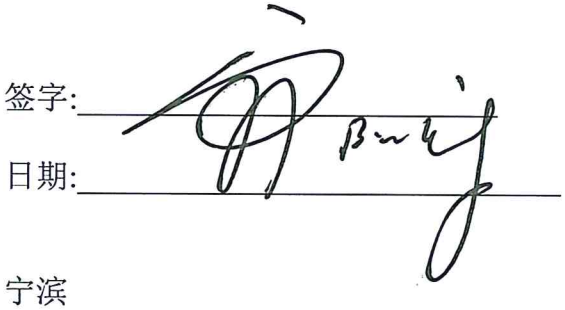
Numyoot Songthanapitak
泰国皇家理工大学校长

签字: 

日期: 08 June 2011

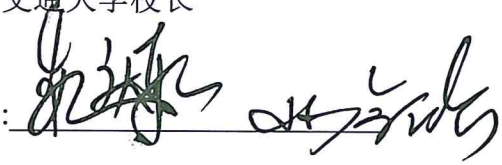
Assoc.Prof. Somchop Chaiyavej, Ph.D.
Member of RMUTT University Council

见证人

签字: 

日期:

宁滨
北京交通大学校长

签字: 

日期:

孙全欣教授　交通运输学院
魏庆朝教授　土木建筑工程学院

见证人

附件 1

费用结算与付款方式

1 本援建合作项目费用按人民币核算，付款时按当天汇率牌价换算成美元支付。

2 甲方支付学员学费

授课方式	教育类别	最低人数	费用标准（万元）	单年	学年数	周期数	总额（万元）
汉语	本科	15	4	60	2	4	480
		20	3	60			480
		30	2.2	66			528
	硕士研究生	5	5	25	2	4	200
		10	4	40			320
		15	3	45			360
双语	本科	15	5	75	2	4	600
		20	4	80			640
		30	3	90			720
	硕士研究生	5	7	35	2	4	280
		10	5.5	55			440
		15	4	60			480

3 乙方费用支出

教师工资

课程建设与教材出版费

多媒体教室设备使用费

图书馆书籍、期刊及教学辅助手段支出费

教学实验室设备使用费、材料费

通讯网络、计算机及视频会议费

教师赴泰签证、交通等费用

行政管理费

项目运行会议费、差旅费、办公费

不可预见费

4 甲方将每阶段所需支付费用的 30%作为定金至少提前 2 个月支付给乙方，乙方在收到甲方汇来的定金后，派遣教师赴泰授课并向来华留学人员发留学邀请函。各阶段项目余款待学员来华前或教师赴泰后一次性支付。

5 援建项目合作期间发生的其它不可预见费，由甲乙双方友好协商后另行签约解决。

6 违约罚款经双方协商一致，结算时由违约方付给对方。

7 乙方收款账户

收款单位： 北京交通大学

开户行： 工商行新街口支行

账 号： 0200002909014481914-06

附件 2 违约责任

1 双方因各自未能履行本协议第二条或第三条规定的义务而造成对方经济损失或其它事故的，应追究责任方的责任，并支付对方补偿金。

2 因甲方原因使生源不足、导致项目无法推进的，定金将不予退还甲方。

3 甲方无故延迟支付乙方费用时，按应付但未付费用总额 0.5%/天的比例向乙方支付违约金。

4 若发生因不可抗力原因造成援建项目不能如期举行，双方不承担违约责任。

附件 3 专业援建方案

1. Cooperation Plan

1.1. Purposes and goals

BJTU will support RMUTT to establish programs in Railway Engineering and Railway Transportation, and endeavor to enable RMUTT to deliver teaching independently within 4 years. Through this education cooperation, BJTU and RMUTT hope to deepen cooperation and friendship, as well as to promote broad exchanges in teaching, education and research.

1.2. Main contents

1.2.1. Program establishment

BJTU and RMUTT will jointly work on the development of curricula, courses and teaching materials, the preparation of faculty and technical staff, and the establishment of specialty laboratories.

1.2.2. Student training

There will be 2 phases as follows.

1st Phase: 2+2 mainly in China, where starting from 2011, RMUTT will select sophomore students of relevant background and send them to BJTU to study in Railway Engineering and Railway Transportation for 2 years. Once they successfully complete the study at BJTU, they will be conferred with dual bachelor degrees from both BJTU and RMUTT.

2nd Phase: 2+2 mainly in Thailand, where starting from 2013, BJTU will select and send teachers to RMUTT to deliver the specialty courses, while RMUTT teachers assist the teaching till they can deliver such courses independently.

1.2.3. Teacher training

RMUTT will select and send teachers to BJTU to study the specialty courses at undergraduate level as well as to assist teaching. The backbone teachers of RMUTT may pursue a doctoral degree at BJTU through negotiations between the two universities.

1.3. Schedule

Mar 2011 – Sep 2011, preparation: cooperation framework will be finalized and

agreement be signed.

Sep 2011 – Jul 2014, the first and second cohorts of RMUTT students will come to study at BJTU; relevant teacher training will take place.

Sep 2011 – Jul 2015, RMUTT will independently recruit undergraduate students for Railway Engineering and Railway Transportation in Sep 2011. The first 2 years of foundation courses will be taught at RMUTT. The rest 2 years of specialty courses will be taught at BJTU, assisted by RMUTT teachers.

Starting from Sep 2015, RMUTT will deliver all teaching independently.

The implementation plan will cover such aspects as studying abroad at BJTU, teaching abroad at RMUTT, teacher training, textbook writing and publishing, laboratory developing, etc. The scheduling is as follows.

Time		Work		Target	Remarks
		BJTU	**RMUTT**		
Preparation 2011.3 ~ 2011.9		• Set up work group • Study, communicate and sign agreement • Draft and finalize the education program and teaching plan • Draft the development scheme for specialty laboratories • Select teachers • Design textbooks in English	• Set up work group • Discuss and sign agreement • Participate in finalizing the education program and teaching plan • Participate in drafting the development scheme for specialty laboratories • Select the 1st cohort of students from sophomores • Select teachers • Finish preparation for recruiting students	• Sign agreement • The 1st cohort of RMUTT students and teachers come to BJTU in Sep 2011 • Finish preparation for specialty teaching	1st cohort: 20-30 students and about 5 teachers for each program
2+2 Mainly in China	2011.9 ~ 2012.7	• Finalize specialty laboratory scheme and launch the development • Finish the preparation on teachers • Train the 1st cohort of Thai teachers • Finish preparation for core courses • Organize to write textbooks for core courses and publish them in English	• Discuss with BJTU on developing specialty laboratories, courses, textbooks, etc. • Start to build specialty laboratories • Start to recruit specialty students and deliver foundation courses • The 1st cohort of students start to study at BJTU • The 1st cohort of teachers start to receive training • Select the 2nd cohort of students and teachers	• Finish recruiting specialty students • Finish the preparation for building specialty laboratory	2nd cohort: 20-30 students and about 5 teachers for each program

	2012.9 ~ 2013.7	• Deliver courses for the 1st and 2nd cohorts of students and finish education for the 1st cohort • Deliver training for 1st and 2nd cohorts of teachers • Finish the development of specialty laboratories and the training for lab teachers • Publish all the textbooks of specialty courses in English	• The 1st and 2nd cohorts of students study at BJTU • The 1st and 2nd cohorts of teachers receive training • Participate in the development of specialty laboratories and training of lab staff	• Publish text books • Finish the development of specialty laboratories • Students finish specialty study at BJTU • 1st cohort of teachers finish training	1st cohort of students graduate and receive dual degrees
2+2 Mainly in Thailand	2013.9 ~ 2014.7	• Teach and finish education for the 2nd cohort of students • Train the 2nd cohort of teachers • Go to Thailand to teach newly recruited students • Assist the establishment of the two programs	• The 1st cohort of teachers finish their training at BJTU and return to RMUTT to assist teaching • The 2nd cohort of students continue their study at BJTU and graduate • The 2nd cohort of teachers receive training	• Chinese teachers go to Thailand to teach • Finish the training of the 2nd cohort of Thai teachers	2nd cohort of students graduate and receive dual degrees
	2014.9 ~ 2015.7	• Go to Thailand to teach newly recruited students • Assist the establishment of the two programs	• Thai teachers participate in the entire process of teaching	• Realize joint teaching by BJTU and RMUTT	Educate students in Thailand completely
Independent teaching			• Teach independently	• Realize independent teaching by RMUTT	Carry out further cooperation

附件 4

Education Plan

1.1. Railway Engineering

Railway Engineering is an engineering discipline covering a broad range of knowledge. Railway engineering works are generally grand in scale, and usually require cooperation among professionals of many different disciplines. The completion of a railway engineering project involves the solution of technical problems in which uncertainty of information and myriad nontechnical factors often play a significant role. The most common subsystems in a railway system include civil infrastructure system, communication and control systems, vehicle system, power supply system and management and operation systems. Railway engineers are concerned with bridges, terminal or station buildings, embankments, tunnels, railway line and track way systems.

The railway engineering program comprises five main disciplines: construction engineering and management, construction materials engineering, geotechnical engineering, structural engineering, and transportation engineering. Although each discipline has its own special body of knowledge and engineering tools, they all rely on the same fundamental core principles. Railway engineering projects often draw expertise from many of these disciplines.

1.1.1. Basic requirements for the bachelor degree

The railway engineering curriculum is designed to develop engineers who have a strong background in mathematics and science, engineers who are articulate, and engineers who understand the nature of their special role in society and the impact of their work on the progress of civilization. The curriculum is designed to guarantee a certain breadth of knowledge of the railway engineering disciplines through a set of core courses and to ensure depth and focus in railway disciplines through areas of specialization. The curriculum develops the basic engineering tools necessary to solve problems in the field of railway engineering.

The curriculum requires 149 credits (16 class hours per credit unit), and is organized into required courses, mathematics and science, civil engineering technical courses, railway engineering special courses and other electives. The first two years of study for undergraduate students build the base needed for the civil engineering education: students take physics, math, chemistry, theoretical and applied mechanics, and some general engineering courses. Students can also take several electives at this time. The last two years of study involve primarily railway engineering courses, requires 75 Credit Units.

1.1.2. Objectives

The objectives of the program reflect the mission of the Department of Civil

Engineering and the importance placed on successful professional practice, the ability to pursue advanced degrees, the assumption of professional and societal leadership roles, and a commitment to lifelong learning.

Graduates of the program will be able to:

1) Successfully enter the railway engineering profession as practicing engineers and consultants with prominent companies and organizations in diverse areas that include bridge, tunnel, geotechnical, embankment, railway line and track system, construction management, or other related or emerging fields.

2) Pursue graduate education and research at major research universities in railway engineering or related fields.

3) Pursue professional licensure.

4) Advance to leadership positions in the profession.

5) Engage in continued learning through professional development.

6) Participate in and contribute to professional societies and community services.

1.1.3. Curriculum (4-year program, 149 credits required)

First Year	**Fall**	**Spring**
Calculus I and II	5	5
Linear Algebra	2	
Chemistry	2	
Physics I II	4	4
Physics Laboratory	1	1
Applied Computing		4
Engineering Drawing	2	2
Electives: Humanities / Social Studies [1]	2	2
Introduction to Railway Engineering [2]	*1*	*1*
Minimum credits required	**18-19**	**18-19**
Second Year	**Fall**	**Spring**
Engineering Mechanics I and II	4	4
Engineering Geology	3	
Engineering Systems & Sustainability		2
Structure & Properties of RE Materials	3	
Engineering Surveying		3
Engineering Surveying Practice		2
Probability Theory & Statistics	3	
Elementary Fluid Mechanics	3	
Engineering Economics		2
Engineering Project Management		3

Electives: Humanities / Social Studies 1	2	2
Minimum credits required	**18**	**19**
Third Year	**Fall**	**Spring**
Mechanics of Structures I II	4	2
Railway System Engineering	3	
Fundamentals of Concrete Structures	4	
Soil Mechanics	3	
Foundation Engineering		2
Track System Engineering		3
Embankment Engineering		2
Planning & Design of Railway Lines	3	
Slope and Earth-retaining Structures		3
Bridge Engineering		3
Tunnel Engineering		3
Electives: Humanities / Social Studies 1	2	2
Minimum credits required	**19**	**20**
Fourth Year	**Fall**	**Spring**
Urban Track System Design	2	
Railway Yard and Station Engineering	2	
Railway Engineering Construction	3	
Railway Engineering Practice	3	
Introduction to High Speed Railways	2	
Bridge Structure Design Tunneling Design Track System Design Railway Line Design Railway Embankment Design	4	
Railway Works Maintains	2	
Dissertation for Bachelor Degree in Railway Engineering		16
Minimum credits required	**20**	**16**
Total credits	**149**	

Notes:

1. Should meet the requirement of the National Education Policy.

2. May be taken in either semester.

1.2. Railway Transportation

The program is set in consideration of railway transportation system operation. We aim to bring up the advanced engineering and management talents who master the basic theory, the specialized knowledge and key technology in the field of railway transportation demand survey analysis, transportation network planning and design, transport capacity resources configuration, and operation management and control. After graduation, students can fulfill jobs in railway transport policy-making, planning, design, operation management and control, etc. Meanwhile, they will also have the integrated transportation thoughts and abilities to offer satisfactory service for passengers and/or cargo owners by combining railway transportation with other modes of transportation.

1.2.1. Basic education system

This is a 4-year program for a bachelor degree.

1.2.2. Basic specifications and requirements

1.2.2.1. Requirements on knowledge

(1) The graduates can grasp the tool knowledge, engineering and technical knowledge, and economic management knowledge, which are all related with the railway transportation. They also should have the potential of creatively applying knowledge in railway transportation planning and design, operation management and control.

(2) On the basis of systematically mastering the common theory and methods of transportation system, the graduates should specially know and master the theory and methods of policies and regulations standard, demand survey analysis, transportation network planning and design, capacity resources configuration, operation management and control about railway transport system.

1.2.2.2. Requirements on engineering application abilities

(1) The ability to acquire knowledge: the graduate can apply all sorts of means to acquire data, information, track the trend of the latest technology in this field, be able to check their own development demands, to formulate and implement continuing professional development program, to expand knowledge and keep learning continuously.

(2) The ability to apply knowledge: the graduate should own the ability to comprehensively apply knowledge to solve the practical problems of railway transportation, the required abilities include establishing mathematical and physical model of railway transport problems, formulating railway transport policies and regulations standard, surveying and analyzing railway transport system demand, planning and designing the network of railway transport system, configuring railway transport system capacity resources, managing and controlling railway transport system

operation, applying the computer information technology and software to solve the practical problems of railway transportation.

(3) Innovation ability: the graduate should have strong innovation consciousness and creative thinking ability, and fully show them in concrete work.

1.2.2.3. Requirements on skills of presentation, communication and team management

(1) Have good written and oral expression skills.

(2) Have good interpersonal skills.

(3) Have good abilities of organization and coordination, teamwork and team management.

1.2.3. Curriculum framework

1.2.3.1. Basic framework

To meet the requirements of the major of Railway Transportation on education specifications, the theory combined with practice should be considered when we design the curriculum system. The curriculum system can be divided into two parts: fundamental education and specialty education.

Fundamental education should be accomplished in the early two years, including Computer Technology and Application, Writing and Oral Communication, Scientific Literature Review, Civil Engineering, Information and Control Engineering, Economy and Management besides Math and Physics.

Specialty education will be set in the junior year and senior year. This module of curriculum system contains two parts: the first part of courses are both theoretical and practical, such as Transportation System Planning and Location, Traffic Hub Design, Transport Organization, Transport Economics and Traffic Safety etc, which not only foster students to have essential theory and capabilities, but also help them to have scientific thinking mode and research methods, develop a railway transport feature under the background of integrated transportation. The other part of courses includes Railway Transportation Infrastructure and Technical Equipment, Railway Station Yard and Hub, Railway Transport Organization, Freight Transport, Passenger Transport, which all focus on combining theory with practice. This part of courses aim to help students establish a holistic knowledge framework about railway transport systematic engineering, understand the huge scale integrated knowledge on railway transportation and create a composite knowledge system. In this way, students gradually grasp a systemic, comprehensive and creative thinking quality from railway transport policy, planning, design, construction, equipment manufacturing to operation control and management. Besides, students' ability to notice and solve problems will be improved either.

It is recommended to require 144 credits of in-class teaching totally in the major of

Railway Transportation, which contain 74 credits for fundamental education and 70 credits for specialty education. In the theoretical curriculum, 1 credit equates to 16 credit hours; in the practical curriculum, 1 credit equates to 2 weeks.

1.2.3.2. Practice

The major of Railway Transportation has very strong practicality, so engineering practice and training should be strengthened in the teaching. Practice teaching is divided into Curriculum Experiment, Curriculum Design, Integrated Experiment, Integrated Design, Cognitive Practice, Production Practice, Graduation Project Design, Writing Training, Oral Training, etc. Through practical training, students' understanding about the practical engineering can be strengthened, and their ability of using knowledge and modern tools to solve practical problems can be improved.

1.2.4. Curriculum (4-year program, 149 credits required)

First Year	**Autumn**	**Spring**
Calculus I	5	
Geometry and Algebra	4	
Engineering Drafting	2	
Advanced Computer Language Programming	4	
The Scientific Literature Review	2	
Calculus II		5
Physics and Physics Experiment I		4
Engineering Measuring and Experiments		4
Computer Network and Internet		4
Courses on Humanities and Social Science		2
Courses on Humanities and Social Science	2	
Minimum credits required	**19**	**19**
Second Year	**Autumn**	**Spring**
Probability and Statistics	4	
Physics and Experiment II	4	
Circuit and Electronic Technology and Experiment	4	
Databases Principals and Application Technology	4	
Operations Research on Management		4
Data Analysis Methods and Modeling		2
Automatic Control Theory		4
Software Engineering		4
Management Principles and Methods		4
Courses on Humanities and Social Science	2	
Minimum credits required	**18**	**18**
Third Year	**Autumn**	**Spring**
Transportation System Planning and Location	4	
Traffic Hub Design	4	
Transport Organization	4	

Railway transportation Infrastructure and Technical Equipment	4	
Train Performance Calculation and Design	2	
Practice courses on Railway Transport System Network Planning and Design	1	
Railway Station Yard and Hub Design		4
Railway Transport Organization		4
Freight Transport		4
Passenger Transport		4
Practice courses on Traffic Hub Design		1
Practice courses on Railway Train Organization and Control Design		1
Practice courses on Freight Transportation Organization Design		1
Practice courses on Passenger Transportation Organization Design		1
Minimum credits required	**19**	**20**
Forth Year	**Autumn**	**Spring**
Transport Economics	4	
Traffic Safety	4	
Train Performance Control System	2	
Transport Business	2	
Container Transport and Multimodal Transport	2	
Practice course on Cognitive Practice on Railway Transportation	1	
Practice course on Comprehensive Experiments on Railway Transport	2	
Practice course on Railway Transport Safety and Meet Emergency Design	1	
Modern Logistics Technology and Management		2
Logistics System Analysis, Planning and Design		2
Supply Chain Management		2
Practice course on Railway Transportation Production Practice		2
Practice course on Graduation Project Design/Dissertation		5
Minimum credits required	**18**	**13**
Total credits	**149**	