ARTICULATION AGREEMENT

between

The Pennsylvania State University
College of Engineering and College of Earth and Mineral Sciences
United States of America

and

China University of Mining and Technology-Beijing
People’s Republic of China

The China University of Mining and Technology-Beijing (CUMTB) and The Pennsylvania State University (Penn State), through its College of Engineering (CoE) and College of Earth and Mineral Sciences (EMS), in order to enrich their educational and research programs and to strengthen cooperation between both universities (Parties), hereby agree to establish a collaborative undergraduate degree program in the field of Engineering under the conditions set forth in this agreement.

SECTION 1. SCOPE

The Parties agree to establish a collaborative undergraduate degree program, a so-called 2 + 2 program (the Program), in the following majors in the College of Engineering: Biological Engineering, Computer Engineering, Computer Science, Electrical Engineering, Engineering Science, and Nuclear Engineering; and the following majors in the College of Earth and Mineral Sciences: Energy Engineering, Materials Science and Engineering, Petroleum and Natural Gas Engineering, Environmental Systems Engineering, and Mining Engineering. Under this Program, CUMTB students will commence and complete the first two years of their undergraduate studies at CUMTB where they will be advised to take as many of the available courses at CUMTB as possible that would be required for their intended major at Penn State. Upon successful completion of the first two years and meeting all Program and Penn State admission requirements, CUMTB students participating in the Program will be allowed transfer to Penn State where they will complete their undergraduate studies in engineering. Students who successfully complete the Program will earn a Bachelor of Science degree from the Penn State CoE or from EMS.

SECTION 2. ADMISSION PROCEDURE

2.1 Eligibility. Only students admitted to CUMTB as first-semester (freshmen) may participate in this Program; it is not available to students admitted to CUMTB as transfer students. A CUMTB student who has been registered as a degree candidate and established a degree candidate record at Penn State prior to entering the Program at CUMTB will be considered a re-enrollment candidate rather than a 2 + 2 program participant and must meet the criteria for re-enrollment in the major at Penn State.

2.2 Student Advising. CUMTB is responsible for advising prospective Program participants and providing them with Program procedures, policies, course and degree requirements and curriculum planning guides during the first two (2) years of the Program. Penn State will provide CUMTB with curriculum planning guides used by Penn State advisors for each major. A Course Advising Table (Table), attached as Appendix 1, is provided as a tool to identify the relationship of specific CUMTB courses to Penn State courses and majors. The Table will be updated as courses are added or deleted or when degree requirements change and the Parties will inform the other of such changes as soon as possible.
2.3 **Nomination.** CUMTB will screen and nominate students and provide the list of nominated students and their desired majors to the Assistant Dean for Student Services in the College of Engineering no later than October 30.

2.4 **Course and Grade Requirements.** Interested CUMTB students should complete core and major-specific courses at CUMTB that have been recommended by Penn State (Appendix 1 – Course Advising Table). Because of different degree requirements and course availability at CUMTB, some of the minimum 60 credits that transfer to Penn State may not be useful in meeting Penn State degree requirements. If students do not or cannot take all the possible suggested courses for their major, they may need more than two (2) years or four (4) semesters to complete their studies at Penn State.

CUMTB students must attain a cumulative grade-point average (GPA) equivalent to Penn State’s 3.00. A Grade Conversion Chart, attached as Appendix 2, will be used to calculate the cumulative GPA. The cumulative GPA will be calculated by the method used at Penn State. When a course is repeated, both grades must be included in the calculation. CUMTB may require more stringent academic standards for transfer nomination.

In addition, CUMTB students must complete the following courses with a grade equivalent to Penn State’s grade of C or higher: Calculus I (16101), Calculus II (16102), a calculus-based Physics (Mechanics) course with a lab (16401 plus 16404) and a general Chemistry course (12201). Students who will apply for admission to Computer Science must complete an intermediate programming course (13436) instead of Chemistry.

2.5 Majors that are subject to enrollment control at Penn State are not available to CUMTB students. Penn State will keep CUMTB informed of any changes to the available majors that occur due to changes in enrollment control.

2.6 **Application Requirements.** CUMTB students must submit the following application materials to the Penn State Office of Admissions no later than February 1 of the applicant’s second year at CUMTB:

- On-line undergraduate application indicating application as a 2+2 student;
- Proof of English language proficiency commensurate with Penn State Undergraduate Admission requirements;
- Official academic record of course work and transcripts;
- Secondary school record;
- Application fee;
- Financial guarantee;
- Schedule of courses for last semester of second year at CUMTB;
- Check sheet of courses taken in first and second year as they relate to Penn State courses listed for the Penn State major.

2.7 **Provisional Admission and Admission.** Penn State reserves the right to limit acceptance of students in a given cycle. Such limits will depend on projected enrollments in the Penn State majors. A maximum of 20 CUMTB students may be admitted to Penn State in a given cycle as part of this Agreement. Nominated CUMTB students who meet the admission requirements will be admitted provisionally to the Program. Once students have completed their fourth semester at CUMTB, they will send their final transcript to the Penn State Admissions Office and be accepted into the major at Penn State, provided they meet and maintain all entrance conditions under the Program and any special conditions specified at the time of provisional admission.

2.8 **Visa and Status.** Penn State will assist CUMTB students in obtaining visas. It is the ultimate responsibility of the student to secure any required visas or documents. Students must maintain
full-time status with a minimum of 12 credits of coursework each semester at Penn State. Only under extraordinary circumstances may students reduce this course load; in such cases, students must discuss their options with the Directorate of International Student Advising (DISA), housed under the University Office of Global Programs (UOGP), in advance.

SECTION 3. PROGRAM IMPLEMENTATION

3.1 Administration. At Penn State, the Program will be administered by the Assistant Dean for Student Services, CoE, and the Associate Dean for Education, EMS, and at CUMTB, by the Director of the International Office.

3.2 Credit Transfer. The Penn State Office of Admissions will transfer credits from CUMTB to Penn State and will provide an evaluation of the transferred courses and credits pursuant to Penn State policies.

3.3 Student Advising. The respective Penn State department within the CoE or EMS will assess each student’s preparedness for major courses based on the courses taken at CUMTB and the effect this may have on the graduation date. CUMTB students should bring the Table to their first meeting with a Penn State faculty advisor.

3.4 Housing. Program participants are eligible for on-campus accommodations, subject to availability. Information about on-campus housing, deadlines, availability, eligibility, and guidelines is available through Penn State Housing, Food Services, and Residence Life. Information about off-campus accommodations is available through the Penn State University Office of Global Programs or through the Division of Student Affairs Office of Off-Campus Living. Arrangements and payments for housing, meals, and other accommodations will be the responsibility of each individual student.

3.5 Health Insurance. CUMTB students must have health insurance coverage that meets Penn State’s insurance standards. This can be accomplished by purchasing Penn State’s health insurance or by obtaining a waiver from the Penn State Student Health Insurance Office by showing proof of comparable coverage (in English).

3.6 Expenses/Tuition. CUMTB students are responsible for the payment of Penn State tuition and all required fees, all accommodation expenses, travel expenses, medical insurance, food, textbooks, clothing, personal expenses, costs for passports, visas, visa extensions, or residency permits, and all other debts and incidental expenses incurred during the course of or for the purpose of their study at Penn State. In case a student cancels participation in the Program, Penn State’s refund policy will apply.

3.7 Compliance. While at Penn State, CUMTB students must abide by the laws, statutes, codes, or guidelines of the host country as well as the rules and regulations of Penn State.

3.8 Notification. Each Party will notify the other in a timely manner if there are any changes made to course numbers, course content, major requirements and other academic matters relevant for the execution of the Program.

3.9 Program Evaluation. Penn State and CUMTB will jointly review the program every year to assess its effectiveness in achieving each Party’s goals. For Penn State, the review team will be comprised of members from CoE and EMS.
3.10 Equal Access. Both institutions are committed to the policy that, subject to applicable laws, statutes, codes, or guidelines, all persons shall have equal access to programs, facilities, admission, and employment, without regard to personal characteristics not related to ability, performance, or qualifications as determined by each university's policies or by their state or federal authorities. Neither institution discriminates against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identity, or veteran status. CUMTB and Penn State shall abide by these principles in the administration of this Articulation Agreement, and neither institution shall impose criteria for the exchange of scholars which would violate the principles of non-discrimination. Nothing herein shall be deemed to create any obligation for either Party to violate any applicable law, statute, code or guideline in order to provide such access.

SECTION 4. GENERAL PROVISIONS

4.1 Use of Name. Neither Party may use the name, logo or mark of the other in any promotional or advertising material (including but not limited to website postings, public announcements and program brochures) without the prior written consent of the other Party pursuant to each institution's policies.

4.2 Term, Amendments, Termination. This agreement will become effective once both Parties have signed. It constitutes the entire agreement between the Parties and may be amended only in writing signed by authorized representatives of both Parties. The agreement will be effective for five (5) years unless terminated by either Party in writing in the form of a written notice submitted at least six (6) months in advance of the proposed termination date. CUMTB students admitted into the Program at the time the agreement is terminated are allowed to complete the Program under the terms of the agreement.

In witness whereof, the Parties hereto have offered their signatures:

The Pennsylvania State University

David Wormley  Date 5/6/2011
David N. Wormley
Dean, College of Engineering

William E. Easterling  Date 5/6/2011
William E. Easterling
Dean, College of Earth and Mineral Sciences

Robert N. Pangborn  Date 5/6/2011
Robert N. Pangborn
Vice President and Dean for Undergraduate Education

Michael Adewumi  Date 5/8/2011
Michael A. Adewumi
Vice Provost for Global Programs

China University of Mining and Technology-Beijing

Chang Weiya  Date 2011-5-12
Chang Weiya
Director, Academic Office for Undergraduate Studies

Wang Hongmei  Date 2011-5-12
Wang Hongmei
Director, International Office

Fan Xun  Date 2011-5-12
Fan Xun
Vice President

Appendix 1: Course Advising Table
Appendix 2: Grade Conversion Scale
### Appendix 1: Course Advising Table

#### 2+2 Program for Engineering Majors

<table>
<thead>
<tr>
<th>PSU Course</th>
<th>Credits</th>
<th>Course Title</th>
<th>PSU Majors</th>
<th>CUMTB Course</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 141, 142</td>
<td>3, 1</td>
<td>Physiology and Lab</td>
<td>Elective for E SC</td>
<td>No Equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS 100</td>
<td>3</td>
<td>Effective Speech</td>
<td>ALL</td>
<td>No Equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 110</td>
<td>3</td>
<td>Chemical Principles I</td>
<td>ALL except CMPSC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 111</td>
<td>3</td>
<td>Experimental Chemistry I</td>
<td>ALL except CMPSC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 112</td>
<td>3</td>
<td>Chemical Principles II</td>
<td>Elective for E SC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 113</td>
<td>1</td>
<td>Experimental Chemistry II</td>
<td>MATSE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 210</td>
<td>3</td>
<td>Organic Chemistry I</td>
<td>MATSE (PLMSE), ENENG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 212, 213</td>
<td>3, 2</td>
<td>Organic Chemistry II and Lab</td>
<td>MATSE (PLMSE)</td>
<td>No Equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMPEN 270</td>
<td>4</td>
<td>Introduction to Digital Systems &amp; Lab</td>
<td>CMPEN, CMPSC, E E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMPSC 121, 122</td>
<td>3, 3</td>
<td>Intermediate Programming</td>
<td>CMPEN, CMPSC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMPSC 200/201</td>
<td>3</td>
<td>Computer Programming for Engineers</td>
<td>ALL except B E, CMPEN, CMPSC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E E 210</td>
<td>4</td>
<td>Circuits and Devices</td>
<td>CMPEN, E E, E SC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E MCH 211</td>
<td>3</td>
<td>Statics</td>
<td>ALL except MATSE (PLMSE), ENENG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E MCH 212</td>
<td>3</td>
<td>Dynamics</td>
<td>ALL except MATSE (PLMSE), ENENG</td>
<td>15101</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>E MCH 213</td>
<td>3</td>
<td>Strength of Materials</td>
<td>ALL except ENVSE, MATSE (PLMSE), ENENG</td>
<td>15102</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>ECON 002 or 004</td>
<td>3</td>
<td>Intro. Microecon. or Macroecon. Analysis and Policy (GS)</td>
<td>ALL</td>
<td>No Equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDSGN 100</td>
<td>3</td>
<td>Introduction to Engineering Design</td>
<td>ALL except CMPEN, ENVSE, MATSE, PNG E and ENENG</td>
<td>13202 or 13205</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ENGL 015</td>
<td>3</td>
<td>Rhetoric and Composition</td>
<td>ALL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOSC 001</td>
<td>3</td>
<td>Physical Geology</td>
<td>PNG E, ENVSE, MNG E</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*College of Engineering (EN) Majors:

- B E Biological Engineering
- CMPEN Computer Engineering
- CMPSC Computer Science
- E E Electrical Engineering
- E SC Engineering Science
- NUC E Nuclear Engineering

*College of Earth and Mineral Sciences (EMS) Majors:

- ENENG Energy Engineering
- ENVSE Environmental Systems Engineering
- MATSE Material Science and Engineering (PLMSE) Polymer Science and Engineering Option of MATSE
- MNG E Mining Engineering
- PNG E Petroleum and Natural Gas Engineering
## Appendix 1: Course Advising Table (continued)

<table>
<thead>
<tr>
<th>PSU Course</th>
<th>Credits</th>
<th>Course Title</th>
<th>PSU Majors</th>
<th>CUMTB Course</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 140</td>
<td>4</td>
<td>Calculus and Analytic Geometry I</td>
<td>ALL</td>
<td>16101</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus and Analytic Geometry II</td>
<td>ALL</td>
<td>16102</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>MATH 220</td>
<td>2</td>
<td>Matrices</td>
<td>ALL except B E, PNG E, ENENG</td>
<td>16108</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MATH 230</td>
<td>4</td>
<td>Calculus and Vector Analysis</td>
<td>ALL except ENVSE, MNG E</td>
<td>Part of 16102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 251</td>
<td>4</td>
<td>Ordinary and Partial Differential Equations</td>
<td>ALL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M E 201/300</td>
<td>3</td>
<td>Introduction to Thermal Science/Engineering Thermodynamics I</td>
<td>ALL except CMPEN, E E, E SC, MNG E and ENENG</td>
<td>No Equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 211</td>
<td>4</td>
<td>General Physics (Mechanics)</td>
<td>ALL</td>
<td>16401 + 16404</td>
<td>3.5 + 1</td>
<td></td>
</tr>
<tr>
<td>PHYS 212</td>
<td>4</td>
<td>General Physics (Electricity and Magnetism)</td>
<td>ALL</td>
<td>16402 + 16405</td>
<td>3.5 + 1</td>
<td></td>
</tr>
<tr>
<td>PHYS 213</td>
<td>2</td>
<td>Fluids &amp; Thermodynamics</td>
<td>E E, E SC, PNG E, MNG E</td>
<td>No Equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 214</td>
<td>2</td>
<td>Waves &amp; Quantum Physics</td>
<td>ALL except B E, ENVSE, PNG E, MNG E</td>
<td>No Equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 401/418</td>
<td>3</td>
<td>Experimental Methods/ Probability</td>
<td>CMPEN, E E</td>
<td>16106</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### General Education Electives

- Arts Electives (GA)
  - e.g. Architecture, Art History, Integrative Arts,
  - Landscape Architecture, Music, Theatre Arts
- Health (GHA)
  - Health Education and Exercise and Sport Activities
- Humanities Electives (GH)
  - e.g. American Studies, Classics, History, Humanities,
    Multi-Ethnic Studies, Philosophy, Religious Studies
- Social & Behavioral Science Elective (GS)
  - e.g. Anthropology, Human Development, Political Science, Psychology, Sociology

### CUMTB Course Grades

- **PSU Course**: 16101, 16102
- **Credits**: 5, 7
- **Grade**: unspecified

- **ME 201/300**: No Equivalent
- **PHYS 211, PHYS 212**: 3.5 + 1
- **PHYS 213, PHYS 214**: No Equivalent
- **STAT 401/418**: 3
- **Other Courses**: Grades unspecified
Appendix 2: Grade Conversion Scale

Students at CUMTB are graded on a scale of 0 to 100, with 100 being the highest grade. The numerical grade for courses taken at CUMTB will be converted to letter grades according to the following scale:

<table>
<thead>
<tr>
<th>CUMTB numerical grade</th>
<th>Penn State equivalent letter grade</th>
<th>Penn State grade-point equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>95 - 100</td>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>90 - 94.9</td>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>85 - 89.9</td>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>80 - 84.9</td>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>75 - 79.9</td>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>70 - 74.9</td>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>65 - 69.9</td>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>60 - 64.9</td>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>59.9 and lower</td>
<td>F</td>
<td>0.00</td>
</tr>
</tbody>
</table>

The letter grades thus determined for each course will then be used to calculate a Grade Point Average (GPA) by assigning grade-point equivalents to each letter grade, according to the right column in the table above.

To calculate the grade-point total for a course, the number of credits for the course will be multiplied by the grade-point equivalent. To calculate the cumulative GPA, the grade-points for all courses will be totaled and divided by the total number of credits taken.