University of Vermont and SPIRAL International

Summer International Dual-Enrollment Program (July 9 – August 5, 2017)

Course Title：Designing Solutions for Global Challenges

Course Introduction:

Science, Technology, Engineering, and Mathematics (STEM) is the group of academic disciplines that is associated with the most promising economic development opportunities, finding solutions to the great challenges we face as a people, a nation, and a planet (water, food, energy, security, health and healthcare), and the largest number of new jobs. Top universities across the nation have made significant investments in STEM teaching and research facilities to attract the best and brightest students and faculty, to prepare graduates for successful careers, to facilitate new partnerships with industry, and to contribute to the economic development of their region. So critical are STEM graduates to the future of our nation that President Obama has called for 10,000 new STEM graduates every year. Here in Vermont, Governor Shumlin has called for significant growth in the number STEM graduates to fill jobs in the state, to help attract new business to Vermont with the promise of talented and well-educated university graduates, and to create new technologies and companies that will create new jobs in the state – in manufacturing, in wind energy, in smart grid technologies, in solar power, in aerospace systems, in biotechnology, in e-commerce, in health-care informatics, and in advanced computing.

Engineering is the application of science to problem solving. Design is the creative expression of knowledge. Engineering Design is an open-discovery art form where the principles of iterative exploration enable us to find solutions to global challenges. Join Vermont and international students in this collaboration between the University of Vermont and the Vermont Center for International Learning and Partnerships. Students will study and interact with students from China and other Asian countries. Students who choose to use a dual enrollment voucher or pay for college credit will earn 3 UVM credits through the College of Engineering and Mathematical Sciences in addition to 1 EHS credit for this course. Successful students will also have an opportunity to win scholarships to travel along with the college tour at the end of the program as peer leaders with the international students. This course is an invitation to all students who believe we can find ways to improve the quality of life for people around the world. This course culminates with an engineering showcase to celebrate the power of young minds to improve our world.

Course Schedule：

Date	Schedule
D1	International students' arrival. Opening ceremony, introductions.
D 2 – D 5 Study Contents	Unit 1: Personal Icon – Students explore the impact of the design process on their personal style and aspirations. Unit 2: Analyze Solutions – Students identify and explain an existing global challenge. Then, discuss a possible solution and evaluate its social, economic, and logistical viability. Workshops: College Application Introduction. Personal Statement Writing Skills (optional for American students)

D6 – D7	Visit downtown Burlington, local communities, Montpelier and Stowe
D8 – D13 Study Contents	Unit 3: Electrical Energy – Students develop proficiency with concepts of electrical energy generation, transmission, use, and storage. Unit 4: Solar Panel Installation – Student design and install a solar panel installation to charge a bank of batteries. The installation is evaluated over time for social, economic, and logistical viability. Workshops: Strategies and tactics in selecting colleges. Sharing experiences and ideas about SAT test taking.
D14 – D15	Visit local communities, explore the challenges that the community may face, and think about the possible solutions.
D16 – D21 Study Contents	Unit 1: Processing – Students develop proficiency with computer programming by designing applications that feature screen manipulation and user interaction. Unit 2: Arduino – Students are introduced to analog circuits and semi-conductors, microcontrollers, input devices, and output devices. Unit 3: Master Project – Students design, plan, build, and evaluate a system that addresses a global challenge. These capstone projects reflect content knowledge and skills developed during the course and are formally presented to the community.
D22	Morning: closing remarks. Farewell lunch. Afternoon: leave for Boston by bus. Visit Dartmouth College on the way to Boston.
D23	Visit Harvard University, MIT and downtown Boston.
D 24	Leave for New York City. Visit Yale University and West Point Military Academy on the way to NYC.
D 25	Visit Columbia University, New York University and downtown New York City
D 26	Leave for Washington DC. Visit Princeton University on the way to Washington DC.
D27	Visit downtown Washington DC, White House, Museums and other attractions.
D28	Return home
Note: schedule is subject to change.	

Includes:

- 3 UVM undergraduate credits (upon successful completion)
- Room and board
- Transportation to and from Burlington International Airport
- US domestic travel, all meals, lodging and activity fees
- Medical insurance for international students

Does not include:

- International airfare
- Visa application fee
- International travel insurance
- Personal expenses

Requirements:

- College student with English grade level of B or above (seen in the transcript)
- or, High school student with English grade level of A (seen in the transcript)
- A writing sample of 500 words
- Successful Skype interview with program officers

For further information and application, please contact:

- Michele Hirsch, SPIRAL International (admin@spiralinternational.org or 802-540-0305)
- or, Dr. Mary Lynn Riggs, Vermont Center for International Learning and Programs (mriggs1036@gmail.com or 802-370-4234)