GMET Global Training Program

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GMET - Global Management for Engineering and Technology- is a globally collaborated training program commissioned by American Society of Mechanical Engineers (ASME) offering solutions to current engineering and technology management issues, such as global collaborative design and production, global marketing, global project financing, and global engineering team building, resulting from the current waves of globalization. Instead of offering a training event, it promotes lifelong learning by combining structured online instructor led study and live in-class training. In order to recognize the attainment of competence through these learning activities, it also develops exams and awards course completion and the program or course(s) completion certificate to all qualified candidates.

Mission

The main objectives of the GMET Global Training Program are to research and deliver solutions to meet industries' and other institution's global operation needs; to build a cross-cultural and transnational learning community where all participants can share and leverage knowledge, skills, and best practices of global management for engineering and technology; to share the course development and training resources; to promote access to learning opportunities and global citizenship; to create global mind set among engineers, scientists, and all other stakeholders; and to make the lifelong learning a reality.

Benefits of the GMET

The GMET training program benefits both companies and individuals.

To Companies, It Offers:

- Access to far greater training resources than each institution could manage individually;
- A flexible and effective training schedule, and unique training format and delivery methods that maximally meet the learning needs of trainees with a wide spectrum of learning styles and schedules;
- Inclusion into a global learning community where all participants can share and leverage the knowledge, skills, and the best practices of global management for engineering and technology;
- An objective way to assess, to compare, and to recognize the attainment of the knowledge, skills, and best practices of global engineering and technology management.

To Individuals, It Delivers:

- Systematic and up-to-date knowledge, skills, and the best practices of global engineering and technology management, such as collaborative and networked engineering, global project management, and cross-cultural engineering team building, that may enhance ones career prospects;
- Access to a global lifelong learning community where one can network with pioneers in global engineering and technology management, talented engineers, scientists, and industry leaders;
- A learning opportunity that fits one's work schedule and learning style; and
- A portable professional recognition of attainment of the knowledge, skills, and the best practices valuable for global operations.

The GMET Global Training Courses

One of the major objectives of the GMET Global Training Program is to offer solutions, through research and training, to the current challenges of global management of engineering and technology facing institutions involving global operations. The world is

changing, and technology advances, and so do the courses in the GMET Global Training Program. We'll always push ourselves beyond conventional thinking, look out for the emerging needs, knowledge, skills, and the best practices in this area, and reinvent this program to best serve the needs of our partners and industries. At its inception, it will start with the following three courses:

- Advanced Concepts in Global Engineering Project Management;
- Collaborative Engineering Principles and Practices for Global Enterprise;
- Global/Cross-Border Leadership and Teamwork for engineers and scientists

Course Contents

In order to meet the wide spectrum of demands for global operation knowledge and skills for industries in general as well as for specific training needs of a company, the GMET training program develops tow knowledge components for each course: generic knowledge component and company specific component.

Generic Knowledge Component

Generic knowledge component refers to the general knowledge, skills, and the best practices of global management for engineering and technology common to most of the companies involving in global operations. It has been extensively researched and developed by the subject matter experts with global authority, and approved by the GMET Program Advisory Board. It consists of lecture notes, reading materials, assignments, discussion topics, projects, presentations, and course library. GMET training, such as the Structured Online Instructor Led Self-Study, In-Class Living Training, and Combined Training, as well as the textbook(s) and the course VCDs, all based these materials.

Company Specific Component

Most companies have different lines of businesses and operation strategies, unique geographic locations, and a staff force with diversified levels of knowledge and skills. Therefore, they face different challenges, and posses peculiar needs for knowledge and skills in their global operations. In order to help them solve these problems and stay competitive, GMET Global Training Program offers an option to develop specific knowledge component at request. The procedures for it are: (1) submit a written request by the company, (2) sign an agreement with GMET Global Training Program, and (3) ASME will commission a subject matter expert to research and develop the course component. While it is similar in features to that of the generic knowledge component, it does not require the approval of the GMET Program Advisor Board, and can directly be used as part of the company's GMET training program. Instead of having two days in-class living training, the in-class training with company specific knowledge component is extended to three days.

Chief Instructors

The chief instructors are the key to the perceived value of the GMET Global Training Program. ASME is very selective in the hiring process. There is one Chief Instructor for each course. All of them are distinguished subject matter experts with profound knowledge in the areas of their research and teaching, and rich experience in consulting and management of global companies, and also well known globally.

The chief instructors will: (1) research, develop, and submit the generic knowledge component to the Program Advisory Board for approval; (2) research, develop company specific knowledge component at request; (3) develop texts, course materials for GMET textbook(s), course training, and courseware VCD production; (4) conduct in-class training and lead online course forum; (5) update the course materials; and (6) edit, select, upgrade the contents of the Course Forum and the Course Library. The names of the chief instructors and their assignment are as follows:

- Stephen Smith Ph.D. – Chief Instructor of Advanced Concepts in Global Engineering Project Management
- Stephen C. Lu Ph.D. – Chief Instructor of Collaborative Engineering Principles and Practices for Global Enterprise
- Dennis R. Briscoe Ph.D. – Chief Instructor of Global/Cross-Border Leadership and Teamwork for engineers and scientists

Program Advisory Board

An advisory board is established for the GMET Global Training Program. The functions of this board include: (1) evaluate the course materials, (2) recommend the changes and approve the contents of the generic knowledge component of all the courses, (3) formulate guidelines to promote the global collaboration, and acceptance of the GMET Global Training Program. The review of the course contents will be performed every two years. Any recommendation of the amendment of the generic component of the course contents shall require a vote of two-thirds majority to be effective.

Members of the board shall be the distinguished subject matter experts from the Authorized GMET Global Training Providers worldwide, industries, as well as cutting edge researchers and educators of leading global academic institutions.

Program Completion Certificate

ASME will award GMET Global Training Program or Course Completion Certificate to trainees who have successfully completed the course(s) or the GMET training program conducted by ASME or by a joint training between ASME and Authorized Training Providers.

After a trainee completes a course of the GMET Global Training Program, either Structured Online Instructor Led Self-Study, or In-Class Training, the trainee will be given a course completion certificate. However, only by successfully finishes the

Program Combined Training of the GMET Global Training, or pass the comprehensive examination, can the trainee receive the program completion certificate.

The credits of the GMET courses will be valid for two years; hence, trainees who have successfully completed the three courses and fulfilled all the requirement of the program within two years are also entitled to have the GMET Program Completion Certificate.

Market Analysis

Globalization

Globalization is a process of interaction and integration among the people, companies, and governments of different nations, a process driven by international trade and investment and aided by information technology. This process has been accelerated since 1950s, especially for the last decade. For instance, since 1950, the volume of world trade has increased by twenty times, and from just 1997 to 1999 the flows of foreign investment nearly doubled, from $468 billion to $827 billion.

Technology has been the other principal driver of globalization. Advances in information technology, in particular, have dramatically transformed economic life. Information technologies have given all sorts of individual economic actors—consumers, investors, businesses—valuable new tools for identifying and pursuing economic opportunities, including faster and more informed analysis of economic trends around the world, easy transfers of assets, and collaboration with far-flung partners.

Globalization and Engineering

In order to stay competitive, many engineering and technology institutions strive to utilize the resources on both local and overseas markets by:

- Setting up joint or wholly owned ventures overseas;
- Forming partnership with overseas organizations, collaborate with its overseas subsidiaries for designing, production, and marketing;
- Outsourcing parts, materials, talents, financial resources from overseas;
- Increasing exchange of professional personal and technology with other countries;
- Outsourcing engineers, or building international engineer teams,
- Designing product in one country, producing and marketing it in many others.

Need for Lifelong Learning

It is alarming that many of the basic skills and much of the knowledge that people acquire while they are at school, college or university soon become ‘out of date’. This is particularly true in many areas of science, engineering and technology. According to a 2002 International Labor Organization report, in the nineteen-eighties, the “half-life” of an engineer’s technical skills – that is, how long it takes for half of everything an engineers knew about his/her field to become obsolete – was estimated to vary from 7.5

years for mechanical and 5 years for electrical, to 2.5 years for software engineers. Most experts would agree that these numbers are probably smaller today.

In order to combat this skill and knowledge obsolescence, we continually need to review 'what we know' and 'how we do things' and, if necessary, update our individual repertoires of skill and knowledge assets. One obvious way of doing this is by means of lifelong learning.

ASME's New Mission

Thus, if there are technical concepts and applications to the global workplace that engineers and natural scientists should know, their education should anticipate them. Unfortunately, there aren't many special training programs systematically addressing these issues around the world.

Being a multidisciplinary international engineering society, ASME has the obligation and strength to lead the global research and training, and to propagate the knowledge, skills, and the best practices in global management of engineering and technology.

Learning Solutions

One of the fundamental premises of lifelong learning is to let students control their own learning activities, make their own schedule, and become responsible for building their own 'knowledge structures'. They then need to access and use appropriate mechanisms and resources to develop the skills and knowledge that they need to realize their goals and ambitions.

Fortunately, the advent of the Internet and the breakthroughs in computing, information, and communication technology expand the horizon of continuing professional development and make lifelong learning a practical reality. For instance, in order to conduct professional training, education providers now can tap pedagogic tools, such as in-house intranet, portable computing system, electronic lectures, electronic books, digital libraries, online tutoring facilities, problem-based learning techniques, automated assessment, and computer conferencing, etc.

The GMET Global Training Program, by utilizing these available pedagogic components, offers the following five unique learning solutions

In-Class Training

The GMET Global Training program is scheduled to offer Combined Training – eight weeks online instructor led self-study plus a two-day in-class training. However, in order to meet companies' or trainees' diversified learning needs and schedules, it can be conducted as an in-class living training only program.

With In-Class Live Training, trainees will have two days in-class live training. The instructor of the course will offer lectures on the generic knowledge and skills component

of the course, answer questions, and conduct the final exam. Trainees will be given lecture notes, course presentations, and the privilege to access the GMET Library and GMET Online Forum for two years.

Trainees can choose to take one, two, or all the three courses at a time. A course completion certificate will be issued to any one who takes the course and passes the exam. The Continuing Education Institute (CEI) of ASME will award GMET program completion certificate to those who successfully fulfill the requirements all three courses within two years.

The course(s) may be offered at trainee's office premise or at a location arranged for by ASME.

Online Instructor Led Self-Study

In order to meet the specific needs of companies, GMET Global Training can also be conducted as Online Instructor Led Self-Study only program.

Under this circumstance, trainees will access the GMET Training Online Management System for eight weeks. This system includes syllabus, calendar, lecture notes, reading materials, assignments, course forum, and course library, and the chief instructor's presentations. Each week, there is a pre-structured learning package for trainees to read, excise, and discuss. Therefore, trainees know exactly what achievements they need to accomplish, and what course materials they need to cover for the week. For all the assignments, there are answer sheets attached. Trainees are advised to complete the assignments by themselves first, and then check with answer sheet for standard answers. If trainees have problems concerning the course materials, they can ask questions by posting them onto the Class Forum. All trainees of the same class are encouraged to offer opinion or answers to the questions. The instructor of the course will also offer guidance to the discussion and lead the self-study.

Apart from the pre-structured learning package, trainees can also access:

- Course Library – a component of the GMET Training Online Management System, through it trainees can access: research papers, science reports, information on related books and journals, ASME Digital Store, related international conferences and academic activities, newspaper clippings, and trainees' model papers; and
- Course Forum – a component of the GMET Training Online Management System, through it trainees can view the Online Self-study Forum conducted by the Chief Instructor of the course. It may also contain the selected exemplary discussions from the Class Forum conducted by instructors of the course worldwide.

Based on the training provider, the Structured Self-Study can be classified in following two forms:

- Conducted by ASME – trainees log onto the GMET Training Online Management System at ASME's website, and access all the features mentioned above; both Course Forum and Class Forum are led by the Chief Instructor of the course; and
- Conducted by Company – trainees log onto the GMET Training Online Management System through authorized education provider, access all the features mentioned above except that the Class Forum is led the an instructor other than the Chief Instructor of the course.

Trainees can choose to take one, two, or all the three courses at a time. A course completion certificate will be issued to any one who takes the instructor led online self-study with ASME. The Continuing Education Institute (CEI) of ASME will award GMET program completion certificate to those who have taken all three courses within two years. The issuance of program or course completion certificate to those who take the course at the company shall be determined by the relevant terms and conditions in the license agreement.

Combined Training

Combined Training is the standard form of the GMET Global Training program. It consists of eight weeks Online Instructor Led Self-Study and two days In-Class Live Training.

Under this arrangement, trainees have all features of services, such as lecture notes, assignments, Class Forum, course library, and course forum, offered in both Online Instructor Led Self-Study and In-Class Live Training. It starts with eight weeks online self-study, and ends with two days or three days In-Class Live Training. Due to the nature of this training format, it offers trainees not only sufficient time to absorb the course materials, but also the benefits of interacting with cutting edge instructor.

With this standard form of training, trainees can choose to take one, two, or all the three courses at a time. A course completion certificate will be issued to any one who takes the course and passes the exam. The Continuing Education Institute (CEI) of ASME will award GMET program completion certificate to those who successfully fulfill the requirements all three courses within two years.

The course(s) may be offered at trainee's office premise or at a location arranged for by ASME

Global Training Super Kit (SK)

The globalization of engineering training is hindered by: language barriers, intellectual Property protection issues, high costs of sending instructors overseas, and complexity of overseas training operations management.

In order to overcome these obstacles and reach out to industries, engineers, and all other stakeholders overseas, the GMET Global Training Program developed a Global Training Super Kit (SK).

The main objective of the SK is to combine Internet, portable computing, multimedia, and other pedagogic technical components, as well as the expertise of cutting edge subject matter experts, to develop comprehensive course materials. Based on these materials, ASME has created three types of legally protected intellectual properties: GMET Global Training Program Combined Training, courseware VCDs, and the textbook(s).

The Combined Training offers abundant course materials for trainees to read, excise, and discuss, and an efficient training online management system to enable them to access these materials anywhere and anytime. All the materials are pre-structured so that both the instructors and the trainees know what to do every week. What's more, the contents of the course materials are constantly researched, reviewed, and updated by the chief instructors of each course so that they can keep breath with the developments of global engineering and technology management. The courseware VCDs contains video and audio components of chief instructor's lectures of the courses, interactive functions of the training activities. They will further aid the teaching and learning activities of the GMET Global Training Program.

Another underlying principle of the SK is to exploit the principle of both "economy of scale" and "economy of scope". By so doing, the GMET training program can offer industries and all other stakeholders an effective training solution for global management for engineering and technology at a fraction of the cost if they develop it by themselves.

Authorized Training

In order to globalize engineering training and lifelong learning, ASME plans to license the intellectual property rights created under the SK to multinational corporations or qualified education providers, and other institutions worldwide, and help them to conduct the GMET training or distributing the GMET product and services by themselves.

The Benefits of Authorized Training Providers

To training providers, the authorized training offers:

- Access to unique course material delivery methods, advanced training formats, ready-to-use course materials researched, developed, and updated by subject matter experts with global authority;
- Cost structure at a fraction to what if they develop the courses themselves because ASME's course development specialization and outreach to education providers worldwide;

- Competitive edges over competitors: lower course development cost, high quality course materials, preemptive positioning by offering training industries need, and association with ASME and subject matter experts of global authority;
- Legal protection of the benefits and investment in its GMET training. By entering a license agreement with ASME, the licensee becomes an authorized GMET training provider, which guarantees it a legal protection of its course activities over a period of many years. This creates conducive environment for the Authorized Training Providers to invest in marketing, training facilities, and team building.

Authorized Training Operations

After an education provider purchases the copyright of the Combined Training of the GMET Global Training Program, ASME will permit it to install the GMET Training Online Management System onto its website. This system connects to the teaching and learning materials prepared by ASME and the chief instructors. The authorized GMET training provider may hire instructor for the courses, and recruit trainees. All trainees can access the Course Calendar, Lecture Notes, Reading Materials, Assignments, Course Forum, and Course Library through the training management system. The instructors can offer in-class training and guide online self-study by following the Syllabus, teaching plan, project guide, assignments and answer sheets, and course training presentations.

The license arrangement is especially beneficial to multinational corporations. For instance, if your company operates in many parts of the world, and plans to train a large number of middle and upper level managers for global operations. The GMET authorized training helps you accomplish this goal faster and cost effectively.

The licenses of the GMET Combined Training, courseware VCDs, and even the textbook(s) will be granted on a case-by-case basis.

Who Should Attend GMET Training

The GMET Global Training Program is to help engineering, science, and technology institutions solve the global management problems resulting from the technology advancements in computing, information, and communication fields. It is beneficial to:

- Engineering Directors, Managers, shop floor supervisors, or those who may be promoted to a leadership position in areas of engineering, such as electrical, computer, and biomedical, aerospace, petroleum, chemical, civil, and mechanical;
- Science directors, managers, or those scientists who may be promoted to a leadership position in the areas of agricultural and food, biological and medical, conservation and foresters, atmospheric, chemists and materials scientists, environmental scientists and geoscientists, and physicists and astronomers;
- Directors, managers, or those who may be promoted to a leadership position in the non-technical areas such as marketing, sales, finance, accounting, customer services, ocean shipping, human resources, and consulting, of engineering or scientific organizations