

# Sustainment and Provincial Planning (SAPP) Program

## STATEMENT OF WORK - DRAFT

25 Aug 09 – Draft

The project defined by this statement of work is in support of the **urban planning and infrastructure development & management** needs of the individual Iraqi governorates (provinces) as well as the **operations and maintenance (O&M)** requirements for infrastructure assets donated by the United States Government (USG) to those Governorates through the Sustainment and Provincial Planning (SAPP) Program. The approach proposed herein is designed to enable the Government of Iraq (GoI) to not only assume and expand the project across Iraq following the departure of US forces, but to also sustain the project effectively and successfully through their existing resources.



**US Army Corps  
of Engineers®**

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# STATEMENT OF WORK FOR SUSTAINMENT AND PROVINCIAL PLANNING (SAPP) PROGRAM

## 1.0 PURPOSE

The purpose of this Statement of Work is to procure and provide technical and other assistance to strengthen Iraqi provincial governments by developing their ability to deliver essential services to their respective communities through academic and practical training support procurement and contracting; construction management; urban planning; and operations and maintenance. This program is intended to meet the needs of the individual Iraqi governorates (provinces) as well as the operations and maintenance requirements for infrastructure assets donated by the United States Government (USG) to those Governorates through the Sustainment and Provincial Planning (SAPP) Program.

The SAPP program has proven successful because it allows for the unique needs and considerations of individual provinces and their populace. The approach proposed herein is designed to enable the Government of Iraq (GoI) to not only assume and expand the project across Iraq following the departure of US forces, but to also sustain the project effectively and successfully through their existing resources.

Required academic and practical training will be developed and deployed by multiple Iraqi Academic Institutes throughout Iraqi provinces in support of projects and training objectives identified by the United States Government (USG) to support provincial-level capacity development and the various Iraqi Provincial Directorate Generals (DGs). Deliverables of this contract shall include but are not limited to completed urban plans; statements of work and related cost estimates; construction plans; and actual operations/maintenance capabilities that each provincial governorate currently requires.

## 2.0 SCOPE

This program provides a contractual mechanism for both the USG and the Academic Institute to provide training services that support critical provincial capacity development, and sustainment planning and programming activities as identified by the USG, within the Iraqi provinces. The program will be tailored to meet Iraqi standard operating policies and procedures, as well as introduce best practices currently employed internationally for each of the defined topic areas.

Upon receipt of government direction related to the specific project, training objectives, and identified provincial students, the Institute will:

- Design an appropriate curriculum subject to USG approval.
- Compile a team of appropriate academic and technical personnel (instructors and managerial staff), subject to USG approval.
- Provide the required classroom training at a central location, then
- Deploy Mobile Training Teams (MTTs) to the project/facility sites for practical (O&M / Operations and Maintenance) training within the students' home provinces on assigned project sites.

A key required outcome is that these provincial students are certified by the Academic Institute to provide long-term sustainment functions at both the professional (managerial) and/or trade/technical (O&M) levels as appropriate.

The Institute shall work closely with the USG to deploy the required training for vetted provincial students. The Institute shall maintain co-operative relationships and appropriate coordination with other USG agencies, and non-governmental organizations (NGOs) working concurrently on a broad range of activities associated with capacity development and sustainment as required. The Institute shall focus on the impact to the various provincial needs.

The intent is that this interactive curriculum will meet the specific capacity development and sustainment needs unique to the province represented by the participating student(s). Additionally, the program will invite contributions and investment necessary for long-term Government of Iraq (GoI) support.

Upon award and receipt of the Notice to Proceed, the Institute shall collaborate with the contracting officer (KO), the contracting officer's representative (COR) and the Gulf Region Division (GRD) program manager to identify the specific training objectives and define the performance measures necessary to evaluate successful task accomplishment at the central classroom level and then with the follow-on practical on-site training. GoI will determine which classes are required to serve the particular provinces; the COR shall communicate this information to the Academic Institute. It is the responsibility of the Institute to identify the appropriate instructional staff (industry professionals, subject matter experts (SMEs), master craftsman, etc) to ensure the requisite knowledge, skills, and abilities to assist the local governments and as well as the Institute as they meet specific training and project objectives defined by the USG and the intent to work to build local capacities.

## 2.1 Summary of Requirements:

- 2.1.1 Centralized Classroom (Theory) Training Component: Develop 1-6 week training courses/workshops endorsed by GoI-sponsored certification to support curricula defined in section 2.2. The Institute shall provide the centralized classrooms, lodging and per diem, and all academic and related materials necessary for successful completion to each student assigned by the USG. Performance is measured in terms of the student evaluation of course content, instructor(s), and facility(ies); completion and delivery of practical plans (city water and sewer master plan; solid waste management plans, etc – a minimum of 50% of the students shall complete a practical plan ); applicability of course to provincial needs; student performance on standardized tests for each module designed by the Institute, based on internationally accepted training practices subject to approval from the USG; and results of USG audits.
- 2.1.2 Practical (Lab Training) Component: Practical Training is a carry-on from the classroom training. This component is supported by a Mobile Training Team (MTT) composed of instructors, managed and deployed by the Institute, who travel with the

student(s) to their home province to oversee and mentor practical training at the professional (management) level and/or site/facility (trade/technical) level. The Practical Training Component is associated with specific products or outcomes designed to achieve mission objectives while developing student capability at the provincial level. An iterative training process between centralized classroom training (2.1.1) and practical training resulting in student certification is envisioned and will be articulated and executed by the Academic Institute in accordance with (IAW) mutually agreed upon parameters established with the USG. All MTT resources including training material, equipment, tools, personal protective and other related equipment provided to students is included in the delivery requirement. These specific products at the professional (management) level include but are not limited to the design/implementation of an urban master plan, an agricultural master plan; city water and sewer master plan; provincial transportation study; solid waste management plan; etc.

Similarly, these specific products at the site/facility (trade/technical) level include but are not limited to mechanical systems; electrical systems; diesel generators; biomedical equipment; sewer systems; heating-ventilating and air conditioning maintenance plans, procedures or standards or equipment troubleshooting; etc. Product objectives are defined by the USG established training objective defined by the KO and COR. Performance is measured in terms of the student evaluation of course content, instructor(s), and facility(ies); completion and delivery of practical plans (city water and sewer master plan; solid waste management plans, etc – a minimum of 50% of the students shall complete a practical plan ); applicability of course to provincial needs; student performance on standardized tests for each module designed by the Institute, based on internationally accepted training practices subject to approval from the USG; and results of USG audits.

Local DGs will be requested to review a draft of the practical training plans developed in this program to ensure suitability for the province.

- 2.2 The Institute shall be responsible for the creation of standard and customized training material; development and implementation of both classroom training programs (2.1.1) and practical training programs (2.1.2); as well as the creation of specific practical training products such as urban master plans, solid waste management plans, and infrastructure projects.

Areas of concentration include but are not limited to:

- 2.2.1 **PROCUREMENT AND CONTRACTING:** Identification of requirements, development of statements of work, bidding and sourcing methodologies with a focus on the characteristics of efficient and effective contract and procurement systems as well as

the development and establishment of transparent, efficient and effective contract and procurement systems, to include contract administration.

- 2.2.2 CONSTRUCTION MANAGEMENT: Develop guidelines for effective preconstruction and post-construction engineering management based on systematic approaches of managing construction engineering activities and resources including time, funds, material, manpower, and equipment.
- 2.2.3 URBAN PLANNING: Design and execution of government plans and policies affecting land use, zoning, public utilities, community facilities, housing, and transportation; technical site investigative techniques and the use of Geographic Information Systems (GIS) to include land survey and geographic referencing, computer aided design drawings, and investigative methods; managing survey and investigative efforts as applicable to the country, province or site/facility/asset.
- 2.2.4 OPERATIONS AND MAINTENANCE: Develop training focused for both the skilled/unskilled labor force with an emphasis on providing applied academic and practical skills to execute Iraq's infrastructure maintenance and sustainment programs. This contract with the Academic Institute intends to provide for services that enhance the overall workforce skill set to an acceptable international standard to ensure proper maintenance engineering processes, automated systems, and best engineering practices related to infrastructure sustainment and life-cycle management. Upon program completion, trained staff is expected to be familiarized with existing processes and procedures necessary to sustain facility operations and maintenance responsibilities within their respective areas of responsibility, to include such topics as preventive maintenance, spare parts management, long range maintenance, operations, budgeting, sustainment, and facilities planning. Operations and maintenance will cover mechanical systems; electrical systems; diesel engines and generators; sanitary systems; water systems; heavy equipment; hand tools; conveying systems; masonry systems; etc.

- 2.3 The Academic Institute shall implement and sustain the training executed under this contract. The intention is to enable access to the proper training that is critical to Iraq's growth.

### **3.0 TASK OBJECTIVES**

This Statement of Work serves as the basis for the tasks under the United States Army Corps of Engineers (USACE) Gulf Region Division (GRD) in Iraq. The tasks described below are designed to provide capacity development for provincial planning, infrastructure development and operations and maintenance. The ultimate goal is GoI self-reliance. The USG-identified training requirement in the above areas of concentration (herein referred to as the "Deliverable," e.g. a master plan, survey, study, database, OMS/OMS plan, etc.) shall be considered as the basis for the Training Management Plan that the Academic Institute designs and deploys.

The objectives of the tasks by the Institute include:

- 3.1 Development of a body of knowledge essential to effective program implementation. This would include but not be limited to urban plans, infrastructure and transportation studies or plans, OMS standards, procedures, inventories or plans, and defining consistent standards for certification. The Institute shall propose standards of student testing and certification subject to USG approval.
- 3.2 Reinforce stability by strengthening on-going collaboration between identified Iraqi technical Institutes and the local governments to effectively and efficiently develop urban plans, infrastructure projects, and Operations and Maintenance Systems (OMS) that support infrastructure requirements, population growth, demographic changes, economic and security demands as well as civic necessities essential to day to day activities of the community.
- 3.3 Implementation of a mechanism through which Iraqi technical institutes and provincial government agencies could remain current on industry advancements in engineering and infrastructure development. Such mechanisms could include associations with international engineering, architectural and construction guilds and certified associations through the establishment of Iraqi chapters endorsed by the parent association. Such associations may enable the Iraqi participants to access vast databases on research and development, discounted access to continuing and professional development programs, as well as potential endorsement by these associations in an effort to reinstate accreditation.

## **4.0 TRAINING DESIGN, IMPLEMENTATION, AND DEPLOYMENT GUIDANCE**

### **4.1 Coordination**

- 4.1.1 The Academic Institute shall coordinate with the KO, the COR, the GRD Program Manager, or other identified USG designee to partner on program development with respect to this program.
- 4.1.2 The Institute's Subject Matter Experts (SMEs) shall familiarize themselves with the working setting, equipment and facilities of the Institute as well as the teaching methodology in Iraq to ensure appropriate communication with the trainees. SMEs must understand how to leverage the resources of the Academic Institute to meet the varying needs of the trainees from different Iraqi provinces.

### **4.2 Curriculum Development**

- 4.2.1 The Institute shall develop curricula designed for 1-6 week courses/workshops for each of the 4 modules discussed in the Statement of Work. The curricula shall take into consideration the technical expertise levels of the targeted trainees at the provincial level, and focus on gaps in capacity or other areas as identified by SMEs and the USG.

#### **4.2.1.1 Module 1: PROCUREMENT AND CONTRACTING**

This curriculum shall be designed for individuals involved in contract administration or procurement activities. The courses in this program shall provide a foundation for understanding both the strategic and operational aspects of the procurement and contract administration functions. Topics for this module are outlined in Appendix A.

#### 4.2.1.2 Module 2: CONSTRUCTION MANAGEMENT

This curriculum shall be designed to enable provincial level students, trainees, and designees to advance their skills in construction planning, drawing, understanding contract documents such as the design and the contract specifications, various construction means and methods, surveying, construction contract administration and other related managerial tasks. Curriculum shall provide concentration in such areas as construction cost control, construction scheduling, and construction safety, field supervision for residential, commercial, or industrial construction. Topics for this module are outlined in Appendix A.

#### 4.2.1.3 Module 3: URBAN PLANNING

The curriculum shall combine the engineering and technical curricula of the Institute with related public policy. Curriculum shall prepare local provincial level planning staff in planning, policy analysis, and program development. Topics for this module are outlined in Appendix A.

#### 4.2.1.4 Module 4: OPERATIONS AND MANAGEMENT (Trade/Technical Education)

This curriculum shall be designed to enable provincial level students, trainees and designees to advance their skills in operations and maintenance systems. Topics for this module are outlined in Appendix A.

#### 4.2.2 The course curricula shall incorporate the following:

4.2.2.1 Balance theoretical/classroom lessons with practical training, including hands-on, practical training as appropriate and indicated. Each module consists of classroom courses with related off-site lab training on actual projects and cases.

4.2.2.2 Total quality management (TQM) for all training and administrative activities. Foster teamwork for the day-to-day delivery of services, coordination of services, managerial, and staff functions for an effective delivery of services.

### 4.3 Training Implementation

The Academic Institute will perform the following:

4.3.1 APPROACH: Each curriculum shall consist of a series of classroom courses and lectures combined with practical lab training, hands-on exercises, and testing as appropriate on the subject discussed in workshop.

- 4.3.1.1 The trainees shall complete subject modules consisting of a series of classroom and related lab training, sequenced progressively by advancement in each topic.
- 4.3.1.2 Each workshop shall consist of lectures and reviews of the lab training with deliverables that may consist of, but are not limited to master plans, Operations, Maintenance, Sustainment (OMS) plans, or any other relevant and necessary practical deliverable.
- 4.3.1.3 Workshops shall be conducted in either the facilities of the Academic Institute or at facilities agreed upon by the KO or COR.
- 4.3.1.4 Lab training shall be administered by the Academic Institute's Mobile Training Teams (MTTs) on site of the relevant Gol facility as required.

#### 4.3.2 CLASSROOM TRAINING

The Academic Institute shall provide centralized classroom training on their facilities or at a site agreed upon by the KO or USG designee. The Institute will:

- 4.3.2.1 Develop standardized tests for each course to assess the skill level of the trainees at the completion of the course. The objective of the testing system is to ensure students' comprehension and retention of material taught, and potentially identify students for advanced training.
- 4.3.2.2 Ensure that all trainees receive a certificate of participation for each course. The certificate of the top 20% of the students will be annotated as the student being in the 20th percentile of the class.
- 4.3.2.3 Develop a database for tracking the names, contact information, work location, position, testing scores and percentile of each participant.
- 4.3.2.4 Ensure students are tested weekly on course material.
- 4.3.2.5 Ensure that students complete evaluations at the conclusion of each course, with copies of completed evaluations provided to the KO/COR. Evaluation shall address the following topics:
  - Instructor effectiveness
  - Lesson plans
  - Course material
  - Learning environment
  - Overall program
  - Billeting, meals, and transportation
- 4.3.2.6 Ensure that training shall culminate with a basic competency exam to assess understanding and retention of the material.
- 4.3.2.7 Ensure that all training materials utilized during instruction will be in both English and Arabic and provided to students. Books and materials provided will become the property of the students.

4.3.2.8 Ensure that all workshops and practical instruction shall be in both English and Arabic.

#### 4.3.3 TRAINING SCHEDULE

The Academic Institute will ensure the training is executed in accordance with the following:

4.3.3.1 Classroom training periods shall not exceed six weeks in length, assuming a work-week of 6 days per week, 6 hours per day, unless otherwise directed by the KO or USG designee. Training shall be conducted in a manner that is conducive to support provincial-level planning and development tasks while providing the necessary instruction during the week.

4.3.3.2 Each class will consist of at least one instructor and one assistant.

4.3.3.3 The Institute will ensure there is an allowance of time between courses to allow for thorough after action-reviews and course critique evaluations by the US Government. The duration shall be mutually agreed upon with COR unless otherwise directed by the KO.

4.3.3.4 Theory and lab training (practical) sessions shall be sequenced to offer trainees the opportunity to apply and/or practice learned topics before advancing forward to the next series of classroom and practical training, via the Mobile Training team (MTT) practical component.

4.3.3.5 MTT (lab/practical training and instruction) is a mandatory element of each course.

#### 4.3.4 LAB TRAINING

The Academic Institute shall ensure their Mobile Training Teams (MTTs) execute the lab training associated with the above curriculum as it applies to the USG identified requirements of the relevant governorate (province). The number of trainees will depend on the size and nature of the section of the governorate (provincial) organization.

4.3.4.1 Lab training shall consist of MTTs, comprised of SMEs to train the trainee staff on site on the activities outlined in the Statement of Work as required.

4.3.4.2 The Academic Institute shall assign SME MTTs for the lab practicum to be executed on-site in the same governorate (province) of the trainees.

4.3.4.3 Should the class be comprised of students from multiple governorates (provinces), then an SME shall be assigned to each of the source governorates (provinces).

4.3.4.4 The period of lab training will vary according to the initial familiarization assessment or requirement conducted by the Academic Institute and agreed upon by the KO or USG designee; but will not exceed two full weeks, unless waived by the KO.

4.3.4.5 The Academic Institute will work to create and deliver comprehensive urban plans, project planning, and execute procurement activities and OMS as required and deployed through their MTTs. A copy of all final products is to be delivered to the COR.

4.3.4.6 Any urgent issues requiring additional visits will be discussed with the USG on a case-by-case basis.

4.3.4.7 Training shall be conducted in a manner that is conducive to support continued operations of the provincial level facilities and agencies as identified by the USG, while providing the necessary instruction during the week. Lab training materials will be developed by the Academic Institute.

4.3.5 DISTANCE LEARNING offered in the format of a webinar (offered in conjunction with the Iraq Chapter of the American Society of Civil Engineers): the Academic Institute will develop webinars (seminars delivered by way of internet) on the subject matters described above in the Statement of Work, delivered by selected professors allowing for alternative instruction and continuing education strategies.

4.3.5.1 The Institute will develop presentation materials and if necessary, supplementary educational literature for the attendance. The Institute shall mentor the presenting subject matter expert in the development and delivery of the presentation.

4.3.5.2 The Institute will assign advisors to coordinate with the provincial level governorate staff to select specific topics to be presented through the webinars. Topics are subject to USG approval.

4.3.5.3 The Institute will coordinate with the provincial level requisites to make available locations for the provincial planning staff and engineers to access these webinars as a part of their on-going professional development.

4.3.5.4 The Institute will coordinate meetings before and after each webinar to evaluate the effectiveness of the presentation, presenter, content, and lessons learned. These lessons will be quantified in a report for the USG and will include detailed feedback from the webinar participants (students).

## 5.0 DELIVERABLES

In fulfillment of this effort, the Academic Institute will provide the deliverables outlined below. All deliverables shall be submitted to the Contracting Officer's Representative (COR). Unless otherwise specified, the Government will have twenty (20) working days from the day the draft deliverable is received to review the document, provide comments, and/or approve or disapprove the deliverables. The Institute will also have a maximum of ten (10) working days from the day comments are received to incorporate all changes and submit the final deliverable to the Government.

## 5.1 **Training Program Management Plan**

The Academic Institute will prepare a Training Program Management Plan (PgMP) describing the technical approach, organizational resources, and management controls to be employed to meet the cost, performance and schedule requirements for this effort. The Training PgMP shall detail the deliverables, approach, allocation of staff and other resources necessary to produce the products and a revised timeline for producing the deliverables, if necessary. The COR shall receive the Training PgMP in both hard copy and electronic form (Microsoft Word). Based on the PgMP, the COR will provide approval to move forward on activities planned. The Institute shall request prior approval on all activities not included in the plan or any modifications to it.

The Training Program Management Plan shall include:

- 5.1.1 Course Outline/Schedule (lesson plan) for courses under the four modules of Procurement and Contracting; Construction Management; Urban Planning; and Operations & Maintenance.
- 5.1.2 Training Objectives for each module
- 5.1.3 Course Content subject to review and approved by the USG
- 5.1.4 Deliverables in accordance with (IAW) the Statement of Work

## 5.2 **Course Completion Deliverables**

Upon completion of the each course the following shall be provided to each participant for their retention:

- 5.2.1 Certification of completion with recognition if within the top 20% of the class

For each course module:

- 5.2.2 Necessary equipment (laptop, software, tools, special equipment, etc)
- 5.2.3 Copy of text book(s)
- 5.2.4 Hardcopy and CD of presentation materials
- 5.2.5 Hardcopy and CD of training manuals
- 5.2.6 Hardcopy and CD of all reference literature used in training
- 5.2.7 Hardcopy and CD of lesson plans and notes
- 5.2.8 Test score data

Within 15 days of completion of each training course the Academic Institute shall submit to the COR the following:

- 5.2.9 Detailed after-action reviews of each course
- 5.2.10 Instructor evaluations from students
- 5.2.11 Overall student performance in completion of course objectives
- 5.2.12 Hand-receipt of material issued to each student

### 5.3 **Monitoring Plan / Quality Control**

The Academic Institute will ensure quality control and will implement initiatives to continuously improve upon both the effectiveness of the training and quality of the deliverables.

Performance is measured in terms of the student evaluation of course content, instructor(s), and facility(ies); completion and delivery of practical plans (city water and sewer master plan; solid waste management plans, etc – a minimum of 50% of the students shall complete a practical plan ); applicability of course to provincial needs; student performance on standardized tests for each module designed by the Institute, based on internationally accepted training practices subject to approval from the USG; and results of USG audits. The COR shall review, for completeness, preliminary or draft documentation that the Institute submits, and may return it to the Institute for correction. Absence of any comments by the COR will not relieve the Institute of the responsibility for complying with the requirements of this work statement.

The Institute shall develop and submit a monitoring plan for approval by the COR which reflects:

- 5.3.1 The approved period of performance for a specific task; and
- 5.3.2 Quality control measures implemented to ensure contract compliance

### 5.4 **Deliverables Reporting**

#### 5.4.1 Weekly Status Report

Reporting requirements for the weekly status reports will be outlined at the initial kick-off meeting.

#### 5.4.2 Monthly Status Report

The Institute shall be responsible for status reports on a monthly basis and providing them to the COR. Status reports shall include, but not be limited to:

- Program status, to include objectives met, work completed, and work outstanding
- Notable achievements
- Issues or obstacles impeding progress and recommended solutions
- Status of deliverables/milestones
- Issues and resolutions
- Resource planning/status
- Classroom contact hours and attendance reports for each module
- Description of work completed and plans for next month
- Summary of the efforts of curriculum execution
- Topics or issues identified by the COR

#### 5.4.3 Final Course Report

The Institute shall provide a final report to the COR at the conclusion of each course. The report shall summarize objectives achieved, significant issues/ problems and recommendations to improve the course as well as the process. The final report will

capture all detail for the course and will include copies of the lesson plan; listing and description of textbook(s) and handouts; instructor CV; list of participating students; summary of student performance; outline of the practical projects produced in the class; one blank copy of each test/quiz; one blank evaluation form and tabulated results of the completed evaluations; a sample certificate for students; and a description and minimum of one photograph of the facilities in which the course was conducted.

## 5.5 **Close-Out and Close-Out Report**

Upon course completion, and project closeout, the following shall be provided to the COR:

5.5.1 An overall project summary and conclusion document, which will include as a minimum:

- Number and location of course taught
- Number of students taught and from what location
- Synopsis of material taught
- Key discussions and learning points
- Expected sustainability of training material
- Recommended follow-on training
- Documented certification for each student
- Student evaluations of instructors, course content and accommodations
- Training materials as requested
- Accountability of materials/equipment distributed to and accepted by trainees

5.5.2 Within 15 days of completion of training, the Institute will provide to the COR:

- Detailed after-action reviews of each module of training
- Documentation of completion of training for each student's completion as well as a "letter of certification" from the Academic Institute verifying that the training has been completed
- Matrix indicating the number of individuals trained, broken down by location, dates and times, and courses completed for each student
- Overall student performance in completion of course objectives

5.5.3 Course and Student Evaluations

- For each course, students shall be tested on a weekly basis
- Students shall complete evaluations at the conclusion of each course of their instructors, course material and accommodations.

## 5.6 **Government Furnished Material**

The USG shall not furnish any equipment. The Academic Institute shall arrange for all instructional equipment and all necessary supplies for the participants.

### 5.7 **Acceptance**

Final approval and acceptance of documentation required herein shall be by letter of approval and acceptance by COR. The Academic Institute shall not construe any letter of acknowledgment of receipt material as a waiver of review, or as an acknowledgment that the material is in conformance with this work statement. Any approval given during preparation of the documentation, or approval for shipment shall not guarantee the final acceptance of the completed documentation.

## 6.0 **PERSONNEL REQUIREMENTS**

- 6.1 The Academic Institute shall ensure that appropriate technical personnel are utilized in the development and deployment of training to perform the activities described herein.
- 6.2 Resumes of instructor personnel are to be submitted to the COR for review in advance of the course. The USG reserves the right to judge the technical skill and competence of the individual instructor and to require the individual's replacement if the individual's qualifications or performance are judged deficient at any time with written notification.
- 6.3 The USG reserves the right to judge the qualifications and acceptability of any individual proposed by the Academic Institute for any position, and may require the substitution of an individual whose qualifications and suitability are judged deficient with written notification.
- 6.4 The Government requires the Academic Institute to identify key personnel for the total period of the project. The execution of project tasks will be subject to the precise assignment of specific individuals identified as key personnel. The Institute must ensure the continued assignment of personnel from project start to project finish. In the event an individual become incapacitated or leaves the Institute, it is the responsibility of the Institute that any replacement instructor personnel are adequately qualified and/or cleared by the KO or COR.
- 6.5 **Key Personnel Definition**  
Certain experienced professional and/or technical personnel are essential for successfully accomplishing the tasks associated with the program. These individuals are defined as "Key Personnel" and are those persons whose resumes were submitted and marked by the vendor as "Key Personnel."
- 6.6 **Substitution of Key Personnel**  
All Academic Institute requests for approval of personnel substitutions hereunder shall be submitted in writing to the COR and the Contracting Officer at least twenty-five (25) calendar days in advance of the effective date, whenever possible, and shall provide a detailed explanation of the circumstances necessitating the proposed substitution, a complete resume for the proposed substitute, and any other information requested by the Contracting Officer necessary to approve or disapprove the proposed substitution. An interview may also be

requested. The COR and the Contracting Officer will evaluate such requests and promptly notify the Institute of approval or disapproval in writing. Substitutions shall only be accepted if in compliance with "Substitution of Key Personnel" provision identified below.

**6.7 Key Personnel Designation**

For the purpose of the overall performance of this effort, the Academic Institute's Program Manager shall be designated as a key personnel. The Program Manager shall be the authorized point of contact with the COR. The Program Manager shall be responsible for formulating and enforcing work standards, assigning schedules, reviewing work discrepancies, and communicating policies, purposes, and goals of the organization to subordinates.

**6.8 Personnel Utilized by the Academic Institute**

The Academic Institute shall be responsible for managing and overseeing the activities of all personnel organic to the Institute or sub-contractor personnel used in performance of this effort. The Institute's management responsibilities shall include all activities necessary to ensure the accomplishment of timely and effective support, performed in accordance with the requirements contained in the statement of work. Resumes submitted for employees assigned to perform under this Statement of Work shall contain documented experience directly applicable to the functions to be performed. Further, these prior work experiences shall be specific and of sufficient variety and duration that the employee is able to effectively and efficiently perform the functions assigned.

**6.9 Program Manager**

6.9.1 The Academic Institute shall provide a Program Manager to facilitate government-contractor communications. The Program Manager shall be the primary technical and managerial interface between the Institute and the COR. The name of this person, and an alternate or alternates, who shall act for the Institute when the Program Manager is absent, is to be designated in writing to the KO/COR. The Program Manager or alternate will have full authority to act for the Institute on all contract matters relating to daily operations.

6.9.2 For the purpose of the overall performance of this effort, the Institute's Program Manager shall be designated as a key personnel. The Program Manager shall be the authorized point of contact with the COR. The Program Manager shall be responsible for formulating and enforcing work standards, assigning schedules, reviewing work discrepancies, and communicating policies, purposes, and goals of the organization to subordinates.

6.9.3 The Institute's Program Manager or alternate must be available during normal duty hours, as specified herein and to meet with government personnel within 24 hours to discuss issues of concern.

- 6.9.4 The Institute's Program Manager shall meet with the KO/COR as necessary to maintain satisfactory performance and to resolve other issues pertaining to government/contractor procedures. At these meetings, a mutual effort will be made to resolve any and all problems identified. Written minutes of these meetings shall be prepared by the Institute in English, signed by the Institute's designated representative, and furnished to the USG within two (2) workdays of the subject meeting. Minutes are subject to approval by the USG.
- 6.9.5 The Institute's Program Manager and alternate or alternates must be able to read, write, speak, and understand English.

## **7.0 OTHER PERFORMANCE REQUIREMENTS**

### **7.1 Interfaces**

The Academic Institute must coordinate on a regular basis with the USG throughout the development and execution phases of the program.

### **7.2 Payment for Unauthorized Work**

No payments will be made for any unauthorized supplies and/or services or for any unauthorized changes to the work specified herein. This includes any services performed by the Institute of their own volition or at the request of an individual other than a duly appointed Contracting Officer (KO). Only a duly appointed Contracting Officer is authorized to change the specifications, terms, and conditions under this effort.

### **7.3 Disclosure of Information**

7.3.1 All information regarding the procedures developed under this task must be regarded as sensitive information by the Institute and not to be disclosed to anyone outside the Institute without the written permission of the KO.

7.3.2 Information made available to the Institute by the USG for the performance or administration of this effort shall be used only for those purposes and shall not be used in any other way without the written agreement of the KO.

7.3.3 The Institute agrees to assume responsibility for protecting the confidentiality of USG records, which are not public information. Each employee of the Institute to whom information may be made available or disclosed shall be notified in writing by the Institute that such information may be disclosed only for a purpose and to the extent authorized herein.

7.3.4 The Institute, and/or their personnel shall not divulge or release data or information developed or obtained in performance of this effort, until made public by the Government, except to authorize Government personnel or upon written approval of the Contracting Officer.

7.3.5 The Institute shall not use, disclose, or reproduce proprietary data that bears a restrictive legend, other than as required in the performance of this effort. Nothing herein shall preclude the use of any data independently acquired by the Institute without such limitations or prohibit an agreement at no cost to the Government

between the Institute and the data owner which provides for greater rights to the Institute.

#### **7.4 Data and IT Security**

7.4.1 The Institute must be able to provide secure data storage (both physical and electronic, as appropriate, e.g., secure computer systems, secure physical storage for paper materials) to safeguard original data that may be proprietary or sensitive in nature or as otherwise designated by the USG. Additionally, the Institute must have the means to physically destroy data (i.e., shredding, incinerating) any interim proprietary or sensitive data should the USG require this.

7.4.2 Any information technology hardware or software used by the Institute in this program must be free of malicious code. Up-to-date virus protection software must be installed on Institute employees' computers, unless waived by the KO.

#### **7.5 Personnel Security**

7.5.1 The Institute shall be responsible for all security for its work force and the participating trainees of this program. This includes obtaining security for all personnel and equipment, and transportation and security of trainees while assigned to the institute.

7.5.2 The USG will not provide any security or escort functions.

7.5.3 Please refer to Section 12 for additional requirements regarding badges.

### **8.0 PLACES OF PERFORMANCE**

#### **8.1 Locations**

Training shall be provided off-site, on-site, or a combination of, depending on program requirements. Services may be provided off-site, on-site, or a combination of, depending on program requirements. However, the majority of the work will be performed at both the Institute or Gol facilities as approved by the COR.

#### **8.2 Transportation and Accommodation**

8.2.1 The Institute will provide its own security for its personnel.

8.2.2 The Institute will provide accommodations and per diem for trainees and instructors.

### **9.0 PERIOD OF PERFORMANCE**

The period of performance for this contract is the date of contract award through 12 months later.

### **10.0 ADMINISTRATIVE CONSIDERATIONS**

To promote timely and effective administration, correspondence shall be subject to the following procedures:

10.1 Technical correspondence (where technical issues relating to compliance with the requirements herein) shall be addressed to the Contracting Officer's Representative (COR) with an information copy to the Contracting Officer (KO) and the Contract Administrator (CA).

- 10.2 All other correspondence, including invoices, that which proposes or otherwise involves waivers, deviations or modifications to the requirements, terms or conditions of this SOW shall be addressed to the Contracting Officer (KO) with an information copy to the COR.

## **11.0 STANDARDS OF CONDUCT**

- 11.1 The Institute will be responsible for taking such disciplinary action, including suspension without pay or removal from the worksite, with respect to its employees, as may be necessary to enforce those standards.
- 11.2 Where applicable, the requirements of this clause must be expressly incorporated into subcontract(s) and must be applicable to all sub-contractor employees who may perform recurring services or work.
- 11.3 Neglect of assigned duty and refusing to render assistance or cooperate in upholding the integrity of the security programs at the worksite.
- 11.3.1 Falsification or unlawful concealment, removal, mutilation, or destruction of any official documents or records, or concealment of material facts by willful omissions from official documents or records; and the like are not acceptable.
- 11.3.2 Disorderly conduct, use of abusive or offensive language, quarreling, intimidation by words or actions, or fighting; participation in disruptive activities which interfere with the normal and efficient operations of the program; and the like are not acceptable.

## **12.0 IDENTIFICATION BADGES**

The Institute must make their key personnel available for photo identification badges on a schedule to be determined by the Contracting Officer's Representative (COR) for MNF-I badges in order to facilitate movement within the country and FOBs, if necessary. Those that may need badges might include the Institute Program Manager and selected Institute personnel.

## **13.0 POST-AWARD EVALUATION OF ACADEMIC INSTITUTE'S PERFORMANCE**

- 13.1 **Academic Institute Performance Evaluations**
- 13.1.1 Interim and final evaluations of the Academic Institute's performance will be prepared on this effort. A final performance evaluation will be prepared by the COR, at the time of completion of work.
- 13.1.2 Interim and final evaluations will be provided to the Institute as soon as practicable after completion of the evaluation. The Institute will be permitted thirty (30) calendar days to review the document and to submit additional information or a rebutting statement. Any disagreement between the parties regarding an evaluation will be referred to an individual one level above the KO, whose decision will be final.
- 13.1.3 Copies of the evaluations, Institute responses, and review comments, if any, will be retained as part of the contract file, and may be used to support future awards.

### 13.2 **Electronic Access to Academic Institute Performance Evaluations**

The registration process requires the Institute to identify an individual that will serve as a primary contact and who will be authorized access to the evaluation for review and comment. In addition, the Institute will be required to identify an alternate contact that will be responsible for notifying the COR in the event the primary contact is unavailable to process the evaluation within the required fifteen (15) calendar day time frame.

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## APPENDIX A – Suggested Courses

**TABLE A: PROCUREMENT AND CONTRACTING**

The following are suggested courses to be developed for the subject areas discussed in the Statement of Work. The Academic Institute shall customize these courses to be applicable to the Provincial Level governorate business processes and related public policies to ensure that the unique needs of the participating provinces are addressed. The Institute therefore shall, as required, further develop, modify, add or substitute courses within the same subject matter provided they are considered applicable and suitable for Iraq and are accepted and approved by the KO/COR following their submittal to the KO/COR for approval. The courses described below shall be structured to include both classroom time and practical training. The practical training component shall be delivered via the Mobile Training Teams (MTTs).

<b>COURSE</b>	<b>Duration of Course (in weeks)</b>	<b>Number of Students</b>
<i>Fundamentals of Procurement and Contracting (C)</i>	2	20
Contract Management Planning	3	20
Procurement Strategy	2	20
<i>Cost Estimation in Procurement (C)</i>	3	20
<i>Contract Solicitation, Award, and Monitoring (C)</i>	3	20
Cost and Price Analysis	2	20
Contract Administration	3	20
Negotiation of Contract Amendments and Contract Modifications	2	20
<i>Purchasing and Materials Management (C)</i>	2	20
Contract Supplier Management	1	20
Subcontract Management	1	20
Law and Ethics for Competitive Procurement	2	20
Risk Management in Contracts	1	20

## **TABLE B: CONSTRUCTION MANAGEMENT**

The following are suggested courses to be developed for the subject areas discussed in the Statement of Work. The Academic Institute shall customize these courses to be applicable to the Provincial Level governorate business processes and related public policies to ensure that the unique needs of the participating provinces are addressed. The Institute therefore shall, as required, further develop, modify, add or substitute courses within the same subject matter provided they are considered applicable and suitable for Iraq and are accepted and approved by the KO/COR following their submittal to the KO/COR for approval. The courses described below shall be structured to include both classroom time and practical training. The practical training component shall be delivered via the Mobile Training Teams (MTTs).

<b>COURSE</b>	<b>Duration of Course (in weeks)</b>	<b>Number of Students</b>
<i>Fundamentals of Construction Management (C)</i>	4	20
Pre-Construction Planning	3	20
<i>Construction Cost Engineering (C)</i>	6	20
<i>Construction Scheduling (C)</i>	6	20
Construction Project Management	3	20
Construction Company Management	3	20
<i>Means and Methods (Commercial, Industrial, &amp; Heavy/Highway) (C)</i>	6	20
Residential and Light Construction	3	20
<i>Mechanical and Electrical Systems (C)</i>	6	20
Manpower for Construction Projects	2	20
Managing Construction Documents	2	20
Construction Building Codes and Regulations	1	20
Surveying	4	20
Land Development	5	20
Construction Law	4	20
Dispute Resolution	2	20
Quality Control and Quality Assurance	4	20
Construction Jobsite Safety	4	20

## TABLE C: URBAN AND REGIONAL PLANNING

The following are suggested courses to be developed for the subject areas discussed in the Statement of Work. The Academic Institute shall customize these courses to be applicable to the Provincial Level governorate business processes and related public policies to ensure that the unique needs of the participating provinces are addressed. The Institute therefore shall, as required, further develop, modify, add or substitute courses within the same subject matter provided they are considered applicable and suitable for Iraq and are accepted and approved by the KO/COR following their submittal to the KO/COR for approval. The courses described below shall be structured to include both classroom time and practical training. The practical training component shall be delivered via the Mobile Training Teams (MTTs).

COURSE	Duration of Course (in weeks)	Number of Students
<i>Principles of Urban Planning (C)</i>	6	20
Urban Land Use and Planning	3	20
Comprehensive Planning	6	20
<i>Infrastructure Planning and Management (C)</i>	4	20
<i>Waste Management (C)</i>	3	20
<i>Water Resource Management (C)</i>	3	20
Transportation, Land Use, and Urban Form	3	20
Physical Design and Site Plan	4	20
<i>Economic Development (C)</i>	4	20
Quantitative Planning Methods	4	20
City Planning and Community Development	6	20
Sustainable Urban Development	3	20
Public Economics of Urban Design	4	20
Urban and Regional Planning for Sustainment	3	20

## **TABLE D: OPERATIONS AND MAINTENANCE**

The following are suggested courses to be developed for the subject areas discussed in the Statement of Work. The Academic Institute shall customize these courses to be applicable to the Provincial Level governorate business processes and related public policies to ensure that the unique needs of the participating provinces are addressed. The Institute therefore shall, as required, further develop, modify, add or substitute courses within the same subject matter provided they are considered applicable and suitable for Iraq and are accepted and approved by the KO/COR following their submittal to the KO/COR for approval. The courses described below shall be structured to include both classroom time and practical training. The practical training component shall be delivered via the Mobile Training Teams (MTTs).

<b>COURSE</b>	<b>Duration of Course (in weeks)</b>	<b>Number of Students</b>
<i>Fundamentals of Maintenance (C)</i>	6	20
Hand Tools and Test Instruments	4	20
Mechanical and Electrical Safety	6	20
Heavy Equipment	6	20
<i>Electrical Distribution Systems (C)</i>	6	20
<i>Domestic and Commercial Water Systems (C)</i>	6	20
<i>Heating, Ventilation, and Air Conditioning (HVAC) Systems (C)</i>	6	20
Sanitary Systems	4	20
<i>Diesel Engines / Generators (C)</i>	6	20
<i>Masonry Repair and Maintenance (C)</i>	4	20
Conveying Systems	4	20
Inspections and Forms	3	20
Reporting Methods	4	20

## APPENDIX B – Course Content Description for Suggested Courses

### **PROCUREMENT AND CONTRACTING Module**

#### **Fundamentals of Procurement and Contracting**

Objective: This course shall be entry-level for those requiring a basic understanding or refresher of contracting and procurement policies and practices in Iraq. This course shall introduce the procurement and contracting processes and treat fundamental principles and techniques in detail that emphasize local government procurement. The course shall provide a detailed procurement and contracting process that is transparent and fair. The curriculum shall be designed to provide theoretical and practical strategies to effectively develop, procure, contract, and channel material, services, and major systems.

#### **Contract Management Planning**

Objective: A contract management planning course will enable the trainees to manage contracts that evolve into more complex performance-based instruments. This course shall define the requirements and measures of performance-based contracting and give instruction on developing a contract management plan (CMP). The purpose of a CMP is to enable contract administrators to develop an appropriate level of planning for contract management that is commensurate with the level of complexity and involvement by members of the contract management team throughout the term of the contract.

#### **Procurement Strategy**

Objective: Students will gain a thorough understanding of how to undertake risk analysis and identify critical factors for success. The course shall address ways to determine the best procurement strategy based on the objectives of the purchaser; how to understand demand requirements and how the supply market operates; and the capability of suppliers to meet specific requirements. Also covered in this course is how to pre-empt unrealistic stakeholder expectations; how to operate in unstable environments; and operating with limited local supply market capability, including where bottlenecks, monopolies, and security issues are impediments to supply and delivery.

#### **Cost Estimation in Procurement**

Objective: This course will give an overview of the cost estimation process for procurement. Topics to be covered include fundamental methodologies of cost estimates such as direct and indirect costs; cost control; calculation of interest; cash-flow; cost-tracking and cost-control.

#### **Contract Solicitation, Award, and Monitoring**

Objective: This course will focus on key pre-award and solicitation activities, award processes, and specific monitoring activities for efficient and effective project and contract management. Using situational examples, participants will analyze the various component steps that could be required in a well-

planned and well-executed procurement. This course will benefit procurement managers and administrators in writing clearly-defined solicitations resulting in well-written proposals. This course will allow participants to draft solicitation information and evaluation criteria for selecting the vendor offering the best value. Organization and operation of the procurement team will also be included. Students will learn monitoring techniques to achieve the delivery of both performance and quality from contractors during implementation.

### **Cost and Price Analysis**

**Objective:** This course shall cover basic concepts in the analysis of contract price by cost-price analysis techniques, weighted guidelines, profit objectives, and analysis. Some form of price or cost analysis should be performed in connection with every procurement action, regardless of whether the organization is a vendor or a subcontractor. The form and degree of analysis, however, are dependent on the particular subcontract or purchase, and the pricing situation. The course shall cover the determination of price rationality through price or cost analysis. The course shall teach students price analysis techniques based on factors such as type of product or service, dollar value, purchase method, and extent of competition. The cost and price analysis shall also be in line with methodology currently used in the province.

### **Contract Administration**

**Objective:** This course shall cover enforcement of contract terms; early recognition of cost overruns; claims and delays; change orders; disputes and appeals; financial analysis; terminations; production surveillance; quality assurance; and audits. The course shall provide a framework for examining contract administration by focusing on essential elements of the discipline. As well, the course shall focus on key considerations related to important contract terms and conditions that must be enforced during contract administration. The intent is for the student to develop a strong understanding of the complexities of contract administration and recognize the importance of planning, monitoring, and proactive insight into and oversight of contract performance. This class also provides a comprehensive overview of the contract administration process within the public sector along with illustrations of the various applicable methods.

### **Negotiation of Contract Amendments and Contract Modifications**

**Objective:** Students will be able to learn, through this course, the techniques of negotiations; preparation and conduct of contract negotiations; and contract modification by the team concept. This course should provide basic negotiation theories and skills, in the context of the Iraqi Government procurement and contract management. The participants shall explore various dispute resolution options, and work through issues associated with managing poor performance as well as appropriate steps to contract termination. Other topics will include negotiating with the frontrunner in an RFP process prior to contract award; debriefing unsuccessful bidders; and all aspects of the Vendor Complaint Review Process.

### **Purchasing and Materials Management**

Objective: The purpose of this course is to provide students with an understanding of the importance of inventory management, and strategic purchasing through proper planning. This course presents a broad view of the principles of industrial purchasing and management of inventories including determination of requirements, pricing, source selection, inventory policy, and purchasing strategies that are cost efficient. The course shall also focus on strategies to manage supplier relationships, locating supply sources, and managing logistical issues.

### **Contract Supplier Management**

Objective: This course shall focus on describing the main types of contractual relationships that might be formed with suppliers. The objective is to facilitate successful commercial relationships with prospective suppliers while identifying key stakeholders. The course shall address common contract/ supplier issues that occur in Iraq and explore problem resolution measures and mitigation strategies that reduce exposure to liability. The course shall provide the student with tools to measure success in deliverables. The course will also address contractual performance and quality management issues and managing contractual reviews and disputes.

### **Subcontract Management**

Objective: In this course, students will learn strategies for effective management of subcontracts and contractual relationships. Issues such as non-compliance, periodic review to assess performance and service levels, planning, and negotiation will be covered.

### **Law and Ethics for Competitive Management**

Objective: This course will cover contract law and legal issues, ethical procurement practices, and standards of conduct. The class will offer individual and group exercises and case studies. Issues such as confidentiality, fairness, and transparency, and bid-shopping, as well as typical concerns such as late bids, errors in proposals, and roles/responsibilities/relationships will be addressed.

### **Risk Management in Contracts**

Objective: This course shall teach students strategies to structure contracts that mitigate risks. This course should use a practical approach to identify and quantify risks in project/program delivery. Upon completion of this course students should be able to explore how to use contract solutions for sharing or transferring risk. The course should provide examples of risk sharing techniques used successfully in government contracts. Students should learn to pursue the ultimate goal of finding the right contractual terms to maximize service delivery while minimizing risk and cost.

## **APPENDIX B (continued) – Course Content Description for Suggested Courses**

### **CONSTRUCTION MANAGEMENT Module**

#### **Fundamentals of Construction Management**

**Objective:** This course shall provide an introduction to construction management; an overview of the construction industry sectors and the industry's impact on the economy (Iraqi and global); and discussion of the basics of the construction process. The student shall be introduced to the fundamentals of the construction and development in residential, commercial, and industrial sectors. The course shall cover construction management from the inception of a project concept to project completion. The course shall cover topics such as key elements of project management; quality management; safety and health; project estimating and bidding; project funding and construction financial management/cost control; scheduling principles and methods; construction contracts and contract administration, subcontractor management; and other issues.

#### **Pre-Construction Planning**

**Objective:** Planning is one of the key functions of the management process. Through this course, the student should learn to execute a project through effective management of resources: manpower, materials, money and equipment. Management of these components throughout the life of the project (from conception to completion) will be covered. This course shall also teach the students to make decisions by anticipating future requirements.

#### **Construction Cost Engineering**

**Objective:** Construction cost engineering shall explore the application of costing principles and estimating within a project management framework in conjunction with scope definition, quality control, planning and scheduling, risk management and loss prevention techniques, local conditions, information and communication, and working relations with stakeholders. The course shall introduce the application of basic quantity surveying and estimating principles using a methodical approach with suggested check lists and techniques for arriving at a reliable cost estimate. Students will learn to include direct, indirect, and contingency costs and profits. The students shall learn to advance their cost engineering efforts toward developing a competitive bid-day scenario.

#### **Construction Scheduling**

**Objective:** A project schedule is a powerful management and communication tool. This course shall be a study of the management techniques used in controlling the time of construction projects, including development of a construction schedule, organization and presentation of project information, and updating and monitoring scheduled progress using critical path methodology. In addition to scheduling concepts such as early and late start/finish, forward and backward pass, critical path, and float, students will learn to construct a resource-loaded project schedule.

### **Construction Project Management**

**Objective:** Construction Project Management refers to the process of managing a team of design and construction professionals for the purpose of delivering construction services to a client. Students shall learn to perform this service so as to deliver the project within budget and schedule constraints, while maintaining the prescribed level of quality defined for the project. This course will address various project delivery methods (construction contract types), as well as the management of field operations and administration of the construction contract. The course will cover contract documents, to include plans and specifications, project organization, supervision, working with owners and design professionals, control of cash flow, procurement, management of subcontractors, job records, contract changes and payment procedures are discussed.

### **Construction Company Management**

**Objective:** This course addresses common issues encountered in running a construction company: company start-up; financing; liability; staffing and related personnel issues; defining roles and responsibilities within the company; marketing the company; and day-to-day management.

### **Means and Methods**

**Objective:** This course shall cover means and methods used in commercial, industrial, and heavy/highway construction. Building systems such as water proofing, fire proofing, site prep and excavation, shoring and underpinning, foundations and piling, fundamental building structure, and cladding will all be covered. Typical construction systems such as masonry (reinforced and unreinforced), steel frame, prefabricated metal buildings, and concrete (pre-cast and cast-in-place) will all be covered. Materials discussed will include concrete, glass and steel/metal in construction. The course will offer an overview of electrical, mechanical, and conveying systems. Additionally, green design and energy-efficient construction will be introduced.

### **Residential and Light Construction**

**Objective:** This course is a study of residential and light construction practices, focusing on the unique means and methods employed in Iraq. This course is designed to provide educational experiences that will enable the student to develop an understanding of construction working drawings and specifications, construction materials and methods, architectural style and quality construction, ability to read and interpret working drawings and specifications and the ability to select or approve appropriate construction materials and methods, for residential and light construction applications.

### **Mechanical and Electrical Systems**

**Objective:** A study of electrical and mechanical systems used in both residential and commercial construction shall be covered in this course. Course content shall include system design, component selection and utilization for energy conservation; cost estimating of systems, coordination and management of installation. Specific systems included are electrical, air conditioning, heating, ventilation and

plumbing, fire protection, life safety, communication, power systems and lighting. The course shall also explore emerging technology and environmental issues related to mechanical and electrical systems in buildings.

### **Manpower for Construction Projects**

**Objective:** This course will discuss the complexity of staffing construction projects based on size, project scope, duration, and required skill-sets in the various trades. The student will learn how best to utilize manpower, equipment, and materials. The course will teach students to understand the complexities of multiple trades working simultaneously and how to best manage concurrent areas of operation.

### **Managing Construction Documents**

**Objective:** Even the smallest construction project has a myriad of documents, both paper and electronic. This course will introduce the students to the various documents they will encounter in a typical project, and how to review, manage, and archive them for reference as needed during the span of the project. Topics covered include the construction contract; specifications, submittal review and returns; invoices and progress payments; requests for information (RFIs), and general correspondence.

### **Construction Building Codes and Regulations**

**Objective:** This course will provide an overview of building codes from the perspective of construction managers and superintendents and will cover various issues related to building codes which must be considered in the building process. This course shall focus on the nature and purpose of the building code, the different components of the building code, the principal building codes and their application. Additionally, sources of information for building codes and updates will be provided.

### **Surveying**

**Objective:** This course will provide the student with the theory, principles and techniques of construction layout and surveying. This course will include field procedures in fundamental land surveying as well as site and foundation layout. The course is expected to offer an understanding of the principles and practices of land surveying, of construction site and foundation layout, an appreciation for accuracy and labor efficient layout, and the skills required to accurately layout a construction project.

### **Land Development**

**Objective:** The course will focus on the principles and procedures employed in determining the feasibility of improvement of real property and the project appraisal process. The course will provide an overview of the development process as it relates to the financial feasibility of the land development project. Working in teams, students will produce feasibility studies that will be presented to the class at the end of the session.

### **Construction Law**

Objective: A study of construction law as it applies to day to day operations of the construction professional and project are covered here. Topics will include, contract documents, to include plans and specifications, claims, insurance, disputes, and ethics in construction. This course will help to understand standard construction contracts, change orders, claims, liens, differing site conditions, unforeseen conditions, construction insurance and dispute resolution.

### **Dispute Resolution**

Objective: This course shall provide a detailed overview of the negotiation process with a focus on the understanding of the negotiation process; development of planning for the conduct of negotiations; development of both distributive (win-lose) and integrative (win-win) bargaining strategies; evaluation of modes of communication and techniques of persuasion designed to improve negotiating effectiveness; consideration of the role of power and personality on bargaining outcomes; analysis of ethical issues likely to arise in conflict resolution; the development of a framework for ethical decision making; and an exploration of mediation, fact-finding, case evaluation, arbitration, partnering, litigation and other modes of dispute resolution.

### **Quality Control and Quality Assurance**

Objective: Students shall be taught the distinction between quality control (QC) and quality assurance (QA). Working in teams, students will develop a quality control plan that focuses on three critical phases of execution: preparatory; initial; and follow-up. Students will learn the components of an effective QC plan and how to respond to a QA report. Daily and weekly inspection, testing, re-testing, sampling, reporting, and record-keeping will all be addressed. Concepts such as Total Quality Management will be addressed.

### **Construction Jobsite Safety**

Objective: Construction is an inherently dangerous industry. A construction jobsite typically has multiple concurrent activities, each with their own safety issues. Students will learn to identify and mitigate common safety issues, as well as develop activity hazard analysis plans for the various phases of construction. Construction Project Safety Plans will be discussed, as well as the use of Personal Protective Equipment (PPE). Procedures for accident reporting and record-keeping will also be reviewed. Working in teams, students will develop and write a company safety plan/manual. Safety analysis, measuring safety performance, cost of accident, accident investigation report and OSHA compliance along with case studies will be discussed.

## **APPENDIX B (continued) – Course Content Description for Suggested Courses**

### **URBAN PLANNING Module**

#### **Principals of Urban Planning**

**Objective:** The main purpose of this class is to provide students the experience in going through the planning process by developing an actual plan. Working in teams, students will develop a sample plan in response to requests for proposals from a typical Iraqi city or a governorate. A series of assignments will build towards the completion of the final plan. These assignments focus on the collection of demographic data, analysis of information, and following a community planning process from problem identification to the development of recommendations, solutions, and the final plan. Class time will be devoted to lecture and workshops on the collection and analysis of information as the initial steps in the planning process. The student will continue with analysis and synthesis of this information and the development and communication of recommendations. Students will make a presentation as a team to their peers.

#### **Urban Land and Use Planning**

**Objective:** This course will provide a broad overview of major land use planning issues from the perspective of the professional planner. Students will learn the fundamentals about the planning and development process. Sustainable land use practices will also be covered.

#### **Comprehensive Planning**

**Objective:** This course shall introduce quantitative techniques commonly used in urban planning practice and urban research. Manipulating numbers and making logical deductions are fundamental skills in the profession of urban planning. To be effective professionals, planners must be able to find appropriate data, analyze data with appropriate techniques, reach sensible conclusions from their analyses, and convincingly present their results to a wide range of audiences that include the general public, clients, community leaders, public officials, and other planners. Using a variety of methods, this course shall prepare the trainees to summarize, analyze, and present data they have collected themselves or have obtained from secondary sources. The course shall also prepare the trainees to critically review quantitative analyses done by others, and to evaluate recommendations that come from experts, consultants, and scholars.

#### **Infrastructure Planning and Management**

**Objective:** The course will take a comparative perspective in addressing infrastructure delivery issues in developing countries. Issues discussed include the current theoretical perspectives on the cause of inadequate infrastructure, and on potential solutions. The potential roles of the province (public sector), private sector, and organizations of civil society in infrastructure delivery shall be examined.

### **Waste Management Planning**

**Objective:** This course shall focus on the waste management processes: collection, storage, transport, valorization and disposal of waste, as well as the monitoring of these activities and of the disposal sites after closure. As cities and their populations grow, they face numerous changes with respect to the amount of waste that continues to grow exponentially, and vary radically. One major concern for the provincial level staff is how to manage such quantities of waste in an appropriate and feasible way, as well as planning for future growth and use. Additionally, inadequate waste management results in dirtiness and health problems, both of which are a major cause of concern for municipalities. Another concern for municipalities is which type of management to choose for solid waste. The management method selected has implications on many aspects: collection and storage by the producers of waste, transport suitable for collecting the waste from “cradle;” frequency of collection, the need to ensure a market for compost and recyclables, and the need to educate the public and increase awareness among residents. Another concern that will be covered is how to cover the cost of waste collection, transfer and treatment, and of limiting the weight and volume to be treated.

### **Water Resources Management**

**Objective:** The course will discuss the application and interrelationships among microeconomics, ecology, hydrology and related fields to the planning and management of water systems. Topics will include flood control, navigation, hydroelectric power, water supply, water demand, environmental restoration, multi-objective planning, and urban water resource management. The course will demonstrate the process for planning a water resource project, including identifying the problems and opportunities, inventorying and forecasting conditions, formulating alternative plans, evaluating alternative plans, comparing alternative plans and selecting a plan.

### **Transportation, Land Use, and Urban Form**

**Objective:** The course will focus specifically on transportation-land use theory; professional techniques; and current transportation policy issues. The course is built on the idea that these disparate aspects are intimately interrelated and frame many current urban transportation policy and planning questions. The course will address transportation and urban change, planning policy, travel supply and demand characteristics, network assignment, impact of transportation and rural and urban communities and planning policy required to stimulate urban change related to transportation.

### **Physical Design and Site Plan**

**Objective:** This course shall introduce the design, regulation, and development of the built landscape. The aim is to teach students an understanding of how built landscapes evolve, and how they can be creatively planned and designed to meet social and ecological goals. This class is appropriate for students in community development, geography, landscape architecture, and environmental planning programs, as well as others interested in land use, sustainable development, or place-making strategies beyond the building scale. The class shall contain extensive practical

experience. In addition to short lectures, the course will emphasize sketch exercises, short assignments, group discussion, and field trips to observe the physical environment firsthand.

### **Economic Development Planning**

**Objective:** This course shall offer an introduction to ways of thinking about the functioning of regional, urban, and local economies and the implications for planning economic development. The course shall examine regional and local industrial locations, processes of development and growth, inter-regional trade, labor markets, and migration. Close attention will be given to the extent planning intervention can influence the location, speed, and character of growth.

### **Quantitative Planning Methods**

**Objective:** This course shall introduce students to some of the quantitative methods and techniques used in planning practice and urban research. Computer applications for data analysis will also be included. Analytic approaches include research design, multi-variate regression, population forecasting, survey research, case study research, evaluation, and graphic data presentation. The emphasis is on methods in the context of planning and urban policy research, and matching the method to the problem.

### **City Planning and Community Development**

**Objective:** This course shall be designed to help students develop both theoretical and practical strength in understanding how to improve central cities. The course will combine in-depth discussion of the readings, and field experience. Various case studies of several cities will be offered.

### **Sustainable Urban Development: Resolving Economic and Environmental Conflict**

**Objective:** This course will focus on urban planning for the purpose of sustainment and betterment of social and environmental welfare in the foreseeable future through current development trends and patterns. The goal of this class will be to address in particular the issue of reconciling environmental protection with economic development in the context of urban and regional planning in consideration to demographic and economic trends. Topics may include population and poverty, progress and pollution, consuming non-living resources, consuming living resources, changing living resources, reforming analysis and politics, sustainment of systems, and other issues.

### **Public Economics of Urban Design**

**Objective:** The discipline of economics shall offer perspectives and tools that are critical to urban and regional planning. Students will address economic considerations in their urban design. In addition, students will learn how economics can help inform the magnitude of intended and unintended effects of program implementation and inform the design of and choice among planning interventions, thus broadening and improving the effectiveness of the planner's ability. This course will introduce the student to basic concepts, perspectives and tools of economics and

their application to the practice of urban and regional planning. In addition, the course shall present critiques of and alternatives to the economics paradigm.

### **Urban and Regional Planning for Sustainment**

Objective: The course will focus on sustainable development to prevent the decline in social and economic welfare and well-being in the country as a result of years of sanctions and post war conflict, erosion of public services. This course shall marry relevant public policy with planning decisions as required in Iraq. The course will address the need to advance economic development in the context of urban and regional planning.

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## **APPENDIX B (continued) – Course Content Description for Suggested Courses**

### **OPERATIONS & MAINTENANCE Module**

#### **Fundamentals of Maintenance**

Objective: This course shall provide an introduction to maintenance methodologies, to include an overview of the facilities maintenance industry sectors and the industry's impact on the economy. This overview will assist the student in understanding their role within the context of overall planning and also be able to identify what different systems and equipment are available for O&M. The course will also include discussion of the basics of the preventative maintenance process and troubleshooting approaches and techniques in cause and effect failure analysis. Simple and complex problem assessment and problem solving techniques will also be covered. The student shall be introduced to the fundamentals of facilities maintenance and field level repair (small repairs) in residential, commercial, and industrial sectors. The course shall instruct the student as to how to determine when a repair is outside the scope of the facilities maintenance skill set and requires outside contracting for repair or replacements. The course shall cover topics such as mechanical and electrical theory, concepts of periodic maintenance and general safety practices.

#### **Hand Tools and Test Instruments**

Objective: Students will be taught the proper name, safe use and application of various tools which they will be required to use in the effectuation of their operations and maintenance duties. This training will include hand tools as well as diagnostic testing equipment. Using the right tool for the job and troubleshooting techniques will be emphasized.

#### **Mechanical and Electrical Safety**

Objective: Through this course, the student should learn to understand the hazards associated with mechanical and electrical systems. They will learn how to select and use the personal protective equipment required for each hazard. The course will cover and emphasize proper lock out/tag out procedures (electrical circuit isolation and process valve isolation.) They will be instructed on safe operation of working from and operating articulating and scissor lift platforms, ladder safety and fall protection. This course shall certify each student in First Aid and CPR. Upon successful completion of this safety training the student shall receive the U.S. equivalent of the OSHA 30 hour safety certification.

#### **Heavy Equipment**

Objective: Students will learn fundamentals of the most commonly used heavy equipment: excavators, dump-trucks, concrete trucks, graders, front-end loaders, compactors, etc, Emphasis will be on safety.

#### **Electrical Distribution Systems**

Objective: This course shall provide the student with all the necessary industry standard sizing, field installation, operations and routine maintenance procedures for electrical distribution systems for

residential, commercial, and industrial applications. Students will also be taught the periodicity of scheduled maintenance and the importance of timeliness when implementing the maintenance program.

### **Domestic and Commercial Water Systems**

Objective: This course shall provide the student with all the necessary industry standard sizing, field installation, and operations and routine maintenance procedures for water systems in residential and commercial applications. Students will also be taught the periodicity of scheduled maintenance and the importance of timeliness when implementing the maintenance program.

### **Heating, Ventilating, and Air-Conditioning (HVAC)**

Objective: This course shall provide the student with all the necessary industry standard sizing, field installation, operations and preventative maintenance procedures for HVAC equipment for residential, commercial, and industrial applications. Students will also be taught the periodicity of scheduled maintenance and the importance of timeliness when implementing the maintenance program.

### **Sanitary Systems**

Objective: This course shall provide the student with all the necessary industry standard sizing, field installation, operations and routine maintenance procedures for sanitary systems for residential and commercial applications. A variety of systems will be covered. They will also be taught the periodicity of scheduled maintenance and the importance of timeliness when implementing the maintenance program.

### **Diesel Engines / Generators**

Objective: This course shall provide the student with all the necessary industry standard field level operations and maintenance procedures for diesel engines. They will also be taught the periodicity of scheduled maintenance and the importance of timeliness when implementing the maintenance program. This course shall also provide the student with all the necessary industry standard sizing, installation, operations and preventative maintenance procedures for generators. Students will also be taught the periodicity of scheduled maintenance and the importance of timeliness when implementing the maintenance program.

### **Masonry Repair and Maintenance**

Objective: Students will learn to examine, evaluate, and make recommendation for repairs to masonry in both interior and exterior applications (CMU, cast-in-place-concrete, pre-cast concrete, etc). Various scenarios of deterioration and damage and corresponding repair methodologies will be covered. Students will also learn when repair is not feasible and replacement is the course of action.

### **Conveying Systems**

**Objective:** This course shall provide the student with all the necessary industry standard field level operations and maintenance procedures for conveying systems (elevators, escalators and moving walkways) for commercial and industrial applications. Students will also be taught the periodicity of scheduled maintenance and the importance of timeliness when implementing the maintenance program. Due to the technical nature of these systems major repairs and maintenance shall be performed by a licensed service technician; the student in this course will be taught what is necessary to act as a first responder in the event the conveying system is to malfunction (i.e. stuck elevator doors, minor escalator and moving walkway malfunction) and when it is necessary to call in a licensed service technician.

### **Inspections and Forms**

**Objective:** The students will be taught the importance of inspection and the documentation of this information on appropriate inspection forms. They will be introduced to the typical maintenance inspection forms for the above detailed equipment and systems. They will be instructed on how to use the forms to capture the tasks required for a given periodicity (weekly, monthly, quarterly, semi annually, annually, etc). The students will be instructed on trouble shooting methodologies such as visual inspection and inspection with portable testing equipment. They will be shown how the information gathered by performing the above mentioned maintenance tasks can be captured and recorded on these documents, and how these documents can be maintained to provide an accurate maintenance record.

### **Reporting Methods**

**Objective:** This module will introduce the students to the concept of computer-based asset management software. All students will gain a familiarity of this technology so that when they are working in a facility where this technology exists they will understand what it is used for and how to input the information gathered from their maintenance inspection forms.