

SMART CITY PROFESSIONAL COURSE



Offered by

KAYA
Consulting Services Pvt Ltd.
— beyond innovation —

Certified by



The content of the "Smart City Professional" professional development course, as presented on February 13, 2019, was certified as appropriate for the stated objectives by the Texas International Education Consortium.

Centre

USHA RAMA
COLLEGE OF ENGINEERING AND TECHNOLOGY
Near Gannavaram, Krishna District, AP



about us

KAYA Consulting Services Pvt Ltd., a startup focused on engineering consultancy services. We are a team of versatile experts with management and industry experience in various domains. Every member of our team combines their skills and work in harmony to ensure projects success. They are personally committed to reach the goals.

We ensure our projects and services meet the highest standards through our team of exceptionally skilled and qualified personnel that focus on the design, quality, schedule, budget and logistics of each project.

vision

We understand with our experience and exposure the engineers, upon graduation and during the practice they have to upgrade their knowledge and learn Multi / Inter disciplinary, in Engineering skills that will be useful for emerging requirements of smart city mission of India and other developing nations.

mission

Our mission is to enable the engineers, in contemporary technologies, mould them into smart engineering professionals.

objectives

In order to achieve the Smart City Vision set forth by Govt. of India with its “Smart City Mission”, it is important that the master urban planners/designers, consultants, contractors, installers, systems integrators, service providers and enablers must adhere to the standards, codes and best practices that governs all the industry verticals and disciplines.

Much emphasis is on “Smart Solutions” that the mission intend to implement, has a host of IT-Enabled services that includes e-Governance, Energy Management, Water management, Urban Mobility and information availability. However, KPIs and minimum performance levels are to be achieved observing standards, codes and best practices. It is often overlooked that all the above mentioned services to be delivered reliably and sustainably, it is mandatory to have the underlying Physical Infrastructure built to standards that are compliant to national / international industry codes and best practices.

Although many of the principles and methodologies recommended by the Smart City Mission of India, are relevant within specific vertical sectors of the cities – Smart Grids, Smart Mobility, Smart Health etc.,. Our focus is very much on the issues and challenges involved in joining all of these up into a whole city approach. Central to the Smart City Mission is therefore a strong emphasis on leadership and governance, business model innovation and the active role played by all stakeholders, including engineers on ground, in the creation, delivery and sustenance of Smart Cities.

outcome

Our endeavor is to do capacity building, in order to fill the gap of professionals carrying multi/inter disciplinary knowledge, identified as a risk in delivering the Smart City Mission by most of the awarded Smart Cities across the country.

Our teams of academicians and industry experts have developed a Course “Smart City Professional” emphasizing on multi/inter disciplinary faculties. **The course is conceptualized and the curriculum is developed by KAYA**, and the content has been reviewed and certified by Experts* from USA.

This capacity building and training exercise would open doors of employment for students in multitude of organizations like Government for their PMOs, Consulting Firms, OEMs, Systems Integrators and Contractors alike.

approach & methodology

We will train the graduate, postgraduate engineering professionals from all the branches of engineering. The engineering professionals undergoing this course will empower them to understand the applications of

- The IT Infrastructure of a Smart City
- The Telecommunication System of a Smart City
- The Urban Planning and Civil Engineering Systems including GIS
- The Electric Power System of a Smart City
- The Environmental and Mechanical Systems including Waste Disposal

With the participation of industry experts, sharing of experiences, knowledge as a key engagement process, for enabling participants to understand, learn the principles and applications.

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Module 1

The IT Infrastructure of a Smart City

A Smart Physical Infrastructure professional intended to learn and develop understanding with the following objectives:

Increase awareness and recognize contributing factors regarding planning / designing / implementing and maintaining & sustaining citywide IT Systems and network infrastructure installations.

Increase awareness about “the inherent culture” of multi-disciplinary approach to smart cohesive city information modeling.

Explore and understand:

The working of City Information Modeling (CIM) and Information Dashboards

Systems Integration and Inter-Operability Techniques

The significance of Network Point-of-Presence

Internetworking Concepts and Technologies

Principles of Monitoring, Control and Management for Smart City Infrastructure

Roles & functions of various technologies like IoT, Sensor, Cloud

Information Systems Security and Data Privacy

Develop understanding of concepts by studying / discussing Case Studies. Build competence to monitor all the aspects of IT Operations within Smart city environment real-time.

Module 2

The Telecommunication System of a Smart City

A Smart Physical Infrastructure professional intended to learn and develop understanding with the following objectives:

Increase awareness and recognize contributing factors regarding planning / designing / implementing and maintaining & sustaining citywide communications infrastructure installations.

Increase awareness about “the inherent culture” of multi-disciplinary approach to smart robust resilient & sustainable omni present communication network.

Explore and understand:

CIM

Fiber Optic Cabling Components (cable and connecting hardware)

Wireless Communication (Cellular Networks from AMPS to 4G, Wi-Fi)

Cabling Pathways and spaces

Bonding and grounding (Earthing) of Cabling Plant

Communications Point-of-Presence

Documentation (Plant System and Project)

Governing/Industry Codes and Standards

Develop understanding of concepts and build competence to execute and monitor all the aspects & stages of an OSP cabling plant.

Module 3

The Urban Planning and Civil Engineering Systems including GIS

A Physical Infrastructure professional intended to learn and develop understanding with the following objectives:

Increase awareness and recognize contributing factors regarding planning / designing / implementing and maintaining & sustaining smart urban physical infrastructure.

Increase awareness about “the inherent culture” of multi-disciplinary engineering approach to smart urban development projects.

Explore and understand:

Geo-Spatial Technology and its applications. Types of Data (Spatial and Attribute)

The role of CIM-feeds in sustaining smart physical infrastructure

Cohesive City Information Modeling

Urban Planning Fundamentals with emphasis on Smart Urbanization

Urban Transport Infrastructure Dynamics (Roads, Bridges, Rail)

Essentials of Traffic Engineering & Integration of Transport Enterprises (MMTS)

Water Distribution Network and Sewer Network and their constituents

Water/Wastewater (sewage) Treatment System and their constituents

Concept of Integrated Municipal Solid Waste Management Process and influencing factors

Use of sub-surface multipurpose Utility Corridors/Tunnels/Trenches

And get acquainted with codes, industry standards and best practices

Develop understanding of smart urban physical infrastructure, the smart city concept and build competence to execute and monitor integrated smart urban development projects.

Module 4

The Electric Power System of a Smart City

A Physical Infrastructure professional intended to learn and develop understanding with the following objectives:

Increase awareness and recognize contributing factors regarding planning / designing / implementing and maintainability & sustainability of citywide electrical distribution network infrastructure installations.

Increase awareness about “the inherent culture” of multi-disciplinary approach to smart urban power distribution and renewable energy systems.

Explore and understand:

Power Generation (include Renewable Energy), Transmission & Distribution

Energy from Waste

Concept of Power Grid Technologies

Smart Grid Technologies as applicable to Micro/City/Local Grids

Pathways and spaces required for both MV Transmission and LV Distribution

Multipurpose Utility Corridors/Tunnels/Trenches etc.

Multipurpose Smart Poles

Net Metering fundamentals and concepts.

Electrical Components/System Installation Methods

ICT in Energy Management

Where physical infrastructure feed are essential for City Information Modeling CIM / BIM feeds

Governing/Industry Codes and Standards

Develop understanding of concepts and build competence to execute and monitor all the aspects & stages of Smart City Electricity Infrastructure.

Module 5

The Environmental and Mechanical Systems including Waste Disposal

A Physical Infrastructure professional intended to learn and develop understanding with the following objectives:

Increase awareness and recognize contributing factors regarding planning / designing / implementing and maintaining & sustaining citywide Water/Sewage Distribution Infrastructure installations & Management and Solid Waste Collection, Disposal, SWM Facility Infrastructure & Management.

Increase awareness of “the inherent culture”, of multi-disciplinary engineering approach to smart environmental projects.

Explore and understand:

The role of CIM-feeds in sustaining smart physical infrastructure

Cohesive City Information Modeling

Natural Environment and its pollutants, pollution monitoring, control and management of a city

Utility Trench/Corridor/Tunnel

Water Distribution Network and Sewer Network and their constituents

Concept of Waste Management

Water/Wastewater (sewage) Treatment Systems and their constituents

Concept of Integrated Municipal Solid Waste Management Process and influencing factors codes, industry standards and best practices

City utility records (individual domain specific and composite drawings/plans)

Develop competence and understanding of concepts and execute and monitor all the aspects & stages of mechanical systems deployment in environmental & sanitary engineering for smart urban development projects.



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www.kayaconsulting.in
email : info@kayaconsulting.in

Call : 9160 86 1111, 9052 45 1111