CIBSE UNITED ARAB EMIRATES

2025 STUDENT DESIGN COMPETITION

COMPETITION BRIEF

CIBSE
United Arab Emirates

CONTENTS

1 CHAIRMANS NOTE

Dear Members and Colleagues,

It gives me great pleasure to welcome you all to this year's CIBSE Student Design Competition—a platform that continues to grow in importance as we respond to the urgent challenges facing our built environment.

This year's theme, Intelligent Buildings, invites you to think beyond conventional design. It's about how buildings can become active participants in shaping a sustainable future—through automation, real-time responsiveness, energy optimization, and user-centric adaptability. It's about merging engineering with digital intelligence to rethink what buildings can do, and how they can evolve with the needs of our planet and our people.

Why does this matter now? The UAE experienced its most extreme rainfall in recorded history earlier this year, shaking many assumptions about the resilience of our urban infrastructure. This event highlighted the urgent need for smart, predictive infrastructure that can adapt to changing environmental conditions. Intelligent buildings, with their ability to respond in real-time and optimize energy use, are crucial in enhancing the resilience and sustainability of our urban spaces. In parallel, the UAE's latest Nationally Determined Contribution to the UNFCCC reminds us that buildings account for 27% of national greenhouse gas emissions—but also hold the potential for a 56% reduction by 2030. This is not just data—it's a call to action.

Last year's competition was a resounding success, with Heriot Watt University emerging as the winner, Manipal University as the runner-up, and Rochester Institute of Technology as highly recommended under the retrofitting submission. Their exceptional designs and forward-thinking approaches served as inspiring examples for all of us. We now look to you—the next wave of thinkers—to take it further. As we look back on the 2024 CIBSE Awards Evening, it serves as a testament to the caliber of talent and dedication within our community. The winning projects and individuals from that evening have set a high standard, and we eagerly anticipate this year's awards ceremony, where we will celebrate the accomplishments of the next generation of engineers and designers. The competition has always been a platform to foster innovation, and I have no doubt that this year will be no different. So, I encourage all of you to take up the challenge, submit your applications, and bring forth your ideas, solutions, and visions for Intelligent Buildings. Your contributions hold the key to a sustainable and prosperous future.

The possibilities are boundless, and together, we can shape a better tomorrow through engineering excellence.

I wish each one of you the best of luck in the competition. I am excited to see your ingenuity at work and witness the transformative power of your ideas.
Warm regards,

Warm regards,

Imran Shaikh, Ramboll
CIBSE UAE Chairman

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2 2024 Winners

Heriot Watt University Dubai
2024 Student Design Competition Winner

Manipal Academy of Higher Education
2024 Student Design Competition Runner-up

R I T Dubai
2024 Student Design Competition Second Runner-up

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3 THE UNITED ARAB EMIRATES (UAE) AND GULF CORPORATION COUNCIL (GCC)

From its humble origins as a fishing and pearling community, the UAE has rapidly evolved into a global centre of commerce, innovation, and technology, all underpinned by a deep commitment to sustainability.

Pioneering projects like Masdar City in Abu Dhabi showcase the UAE's dedication to sustainable urban development through renewable energy and innovative architecture. Within the UAE, examples such as the Dubai Solar Park, one of the world's largest, reflects the emirates determination to harness clean energy to power homes via renewable energy. Expo 2020, now Expo City, also located in Dubai; developed against the theme of 'Connecting Minds, Creating the Future,' exemplifies the regions innovation prowess, drawing global thinkers and entrepreneurship.

Beyond the UAE, the Gulf Corporation Council (GCC) nations have equally transitioned themselves from trading hubs to global leaders in commerce and sustainability. Saudi Arabia's NEOM project by example, envisions futuristic cities in harmony with nature. Qatar's sustainable World Cup 2022 infrastructure showcases eco-centric planning. Oman champions biodiversity, while Kuwait and Bahrain are continually intensifying their renewable energy efforts.

Although the regions focus will ultimately continue in the short-term to remain predominantly focused on new build development, the region is also recognising that a significant portion of its energy consumption lies in its existing structures, making retrofitting essential to reducing its carbon footprint. Dubai alone has in excess of 170,000 existing buildings before considering that of larger regional cities such as Cairo and Kuwait City. As such, the growing need for green retrofitting is due to take centre stage, as existing buildings play a crucial role in the region's sustainability journey and net zero ambitions.

With around 70-80% of the current building stock already constructed and expected to stay in use by 2050, decarbonisation of the existing built environment is therefore a necessity for a better, more sustainable future within the region, and globally, and will be crucial step in its commitment to being a global benchmark for sustainable living.

4 CLIMATE

The global climate crisis is reshaping our planet, affecting every corner of the world. From surging temperatures to erratic weather patterns and rising sea levels, these changes are putting ecosystems, economies, and communities on the line.

The GCC countries, characterised by vast desert expanses and unique geographical features, face particular challenges.

Often, temperatures in this region surge beyond 50°C (122°F). Such extremes not only magnify global issues but also introduce distinctive regional concerns in domains like cooling, water conservation, and energy efficiency.

Saudi Arabia, with its Vision 2030, and the UAE, through its Vision 2021, are just two examples of GCC nations that have recognized and risen to these challenges.

The broader GCC has also been active on the global stage, with many member countries ratifying the Paris Agreement, demonstrating a collective dedication to mitigate climate change impacts and curtail greenhouse gas emissions.

This collective commitment, enriched by the region's tradition of innovation and vision, creates a fertile ground for aspiring innovators to ideate and mould sustainable technologies that cater to both global and regional environmental needs.

Global attraction: delivering net zero in the desert climate

The UAE has a fast-paced, dynamic working environment, with some of the most ambitious building projects on Earth. Alex Smith speaks to regional chair Farah Naz FCIBSE about how CIBSE UAE Region is helping to deliver net zero projects in the desert climate

Posted in April 2023

'Interesting, challenging and rewarding' is how Farah Naz FCIBSE describes her four years as chair of the CIBSE UAE Region. With the UAE government committing to net zero carbon by 2050, building services engineers' skills are in high demand, and the CIBSE UAE Region is doing its utmost to provide guidance and support to help decarbonise existing stock and create resilient buildings in a climate of extremes.

'Everyone's moving towards decarbonisation and how to integrate it. There's been a huge mindset shift,' says Naz, who works as a climate strategy adviser at Aecom. 'It's now up to the engineers to implement these net zero plans – it's what we do best.'

Burgeoning demand for engineers in Dubai and Abu Dhabi may mean long working days for CIBSE members, but it also provides incredible opportunities to deliver globally significant buildings at a very fast pace.

'The region wants you to grow and learn,' says Naz, who led on sustainability and innovation at the Museum of the Future while at Buro Happold. 'You're constantly being pushed. It's about making the impossible possible in a short period of time.'

To equip engineers with the knowledge to optimise building services design, CIBSE UAE has recently published three guides. Covering Dubai, Abu Dhabi and Saudi Arabia, they take into consideration the extreme heat of the climate, and pay particular attention to air conditioning and the impact of heat rejection on urban microclimates. 'These guides have played a huge role for new engineers coming in and existing ones who are working,' says Naz. 'They have been very influential in the region.'

5 THE COMPETITION

Welcome to the CIBSE UAE Student Design Competition 2025 – an exciting platform for aspiring engineers to reimagine the future of smart and sustainable buildings across the United Arab Emirates, Kingdom of Saudi Arabia, and the wider MENA region.

This year's theme, "Intelligent Buildings," invites students to explore how buildings can think, respond, and adapt through advanced technology. Your challenge is to design or retrofit a building that integrates intelligent systems such as smart HVAC, IoT-driven controls, adaptive lighting, predictive maintenance, and real-time energy optimization.

We encourage solutions that improve energy performance, reduce carbon footprint, and enhance occupant comfort, while using digital tools and data for continuous performance improvement.

As we build on the legacy of COP28, hosted in Dubai in November 2023, your proposals should reflect key values of innovation, inclusivity, resilience, and sustainability. Let your design respond not only to environmental goals but also to the needs of occupants and the broader community.

Submissions are open to individuals or teams of up to four members. This format allows you to bring forward either your own unique vision or a collaborative effort that blends diverse skills and perspectives.

By participating, you'll contribute to a growing movement that aims to transform buildings into smart ecosystems—integrated, responsive, and future-ready. The competition offers a space for you to demonstrate how technology and sustainability can work hand in hand to shape the built environment.

Seize this opportunity to showcase your talent and help the GCC lead in the global transition to intelligent, low-carbon buildings.

Let your ideas shine, and help shape the smart buildings of tomorrow.

Good luck!

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6 THE COMPETITION BUILDING & BRIEF

Imagine the building of your choice is re-imagined as an intelligent structure that adapts, learns, and optimizes performance through integrated smart technologies.

Now imagine what your re-purposed intelligent building looks like; how does your building address the need for contributing to a livable, connected, and responsive city?

The page overleaf provides examples of how an existing building may be reimagined to fulfil these criteria. However, we invite you to utilize your creativity and technical knowledge to expand on this, take it further, or in an entirely different direction, to provide a concept design scheme which is inclusive to your geography and frontline community needs, while embodying cutting-edge intelligent building systems and demonstrating commercial viability.

Your existing building of choice could be low rise, high rise or anything in between, but should be based on an existing building of reference; local to your geography, and of which you feel addresses the competition outcomes.

The building of your choice can be located anywhere in the MENA.

The focus is to propose solutions for intelligent buildings of the future that take into account the integration of smart technologies and data-driven systems considering adaptive, responsive design approaches and also accounting for the building's fully digital lifecycle as well.

7 Intelligent Buildings: Reimagining Existing Structures for a Smarter Future

Engineering The Solution

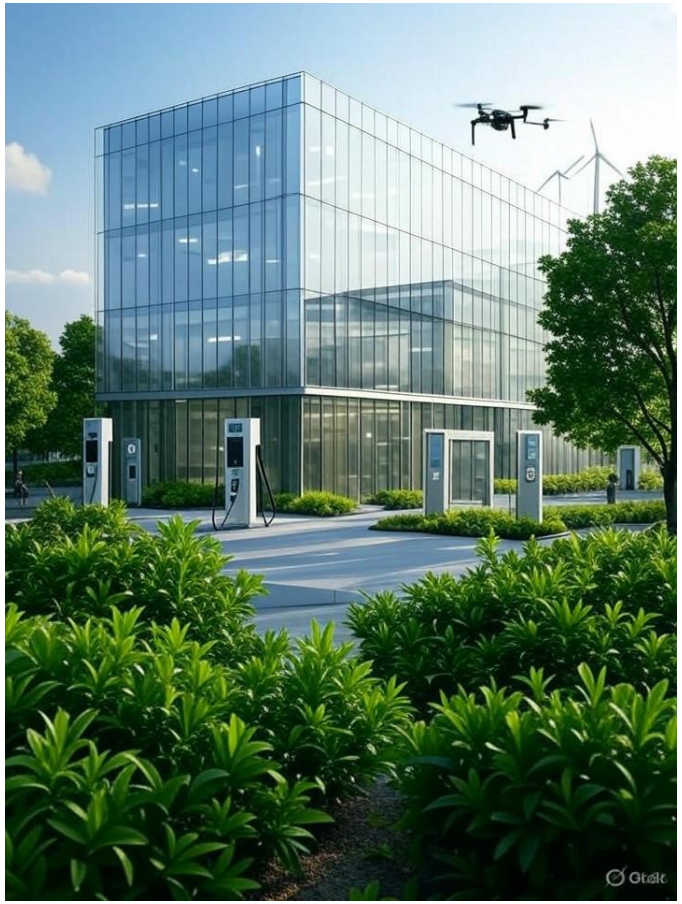
As part of either an individual submission or a collaborative project team, each applicant(s) are to re-imagine an existing building of your choice and bring to life your vision for an intelligent building, or you can design the building from scratch

To turn your vision into reality there are a number of practical considerations that you and or your team may want to explore:

You can consider these key aspects of Building Design, but feel free to add more

1. Automation and Control
2. Connectivity
3. Sustainability
4. Occupant Comfort
5. Data Analytics: and cyber Security
6. Safety Systems
7. Energy Efficiency
8. Climate Adaptation and Resilience:
9. Smart Mobility
10. Integration of Renewables
11. Energy Storage

REMEMBER to utilise your creativity and Technical knowledge to expand on the ideas provided, take it further, or in an entirely different direction. The choice is yours…



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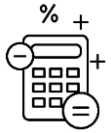
8 ASSESSMENT & SUBMISSION CRITERIA

Cross-Cutting Themes		**Assessment Criteria -** *In respect to your chosen building, demonstrate how your specific project goes about addressing the following assessment criteria to:*	
	**Technology & Innovation**	➢ Address the specific challenges and opportunities of intelligent building transformation in urban areas with high population density and economic activity while accommodating urban growth or address the unique challenges and opportunities of implementing intelligent building practices while harnessing local resources, traditional knowledge, and innovative technologies to achieve smart operations and sustainable growth in rural settings. ➢ Demonstrate consideration of the social and economic aspects of digital transition, ensuring a just transition for the affected local communities while showcasing innovative intelligent systems that minimize environmental impact and contribute to sustainability. ➢ Demonstrate understanding of smart materials selection, construction techniques, and intelligent design principles for existing buildings and their infrastructure.	30 %
	**Inclusion**	➢ Present innovative approaches on how inclusive policy making are central to achieving the climate agenda while addressing the unique challenges faced by marginalized groups and how the implementation of community conscious building adaptations as part of intelligent building strategies could address this. ➢ Offer innovative ideas for breaking down barriers that hinder wider climate-related fields and how the adaptation of existing buildings with a focus on inclusivity and intelligent systems could address this. ➢ Proposes strategies as to how the transformation of existing buildings into intelligent spaces could contribute toward inspiring ➢ and educating young individuals about the intersection of climate change, gender equality, and social justice.	10%
	**Frontline Communities**	➢ Present innovative approaches for incorporating nature-based solutions into your intelligent building to tackle climate mitigation and adaptation. ➢ Propose measures as to how your intelligent building transformation could contribute to the enhancement of community resilience in the face of climate-related challenges, ensuring that local communities and livelihoods are protected. ➢ Showcase understanding of how climate action can be designed and incorporated in your intelligent building to promote social ➢ stability and minimize disparities.	10%
	**Finance**	➢ Demonstrate a comprehensive understanding of the financial links between climate change and public health and how the ➢ adaptation of your chosen existing building into an intelligent building goes about tackling this. ➢ Highlight the incentives for developers to prioritize smart and sustainable practices as part of your intelligent building adaptation. ➢ Conduct a cost-benefit analysis comparing any short-term financial implications with long-term benefits for all intelligent low-carbon and renewable energy technology integrations as part of your chosen intelligent building adaptations proposed.	10%

Individual or Group Submissions to Include:

- White Paper (Up to 10 pages)
- Supporting Poster (A3 Paper Size

Email Submission

uae@cibse.org

8 ASSESSMENT & SUBMISSION CRITERIA

Cross-Cutting Themes		**Assessment Criteria -** *In respect to your chosen building, demonstrate how your specific project goes about addressing the following assessment criteria to:*	
	**Climate Resilience**	➢ Discuss the innovative approaches how existing structures can be made climate resilient through intelligent systems in response to extreme weather events. ➢ Enhance and build capacity in the context of involving government, businesses and communities to mitigate and adapt to harsh weather events using smart technologies and data-driven building strategies.	15%
	**Embodied carbon**	➢ Propose strategies that minimize the embodied carbon produced during manufacturing of intelligent building materials(material extraction, transport to manufacturer, manufacturing), the transport of those materials to the job site, and the construction practices used for smart system integration. ➢ It is good to have a qualitative explanation, however, quantitative description shall be appreciated, especially when demonstrating the impact of intelligent building systems and technologies. ➢ Offer actionable strategies for creating intelligent, low-carbon built environments specifically catering for existing buildings, while showcasing innovative and smart energy sources, technologies and practices that can drive emissions reduction.	10%
	**Energy Efficiency**	➢ Discuss and include design strategies that shall enhance the building energy efficiency using intelligent techniques around Air-conditioning, ventilation, lighting and and heating. ➢ Also include ways the way renewables can be integrated in the existing intelligent building design thus reducing the functional carbon. It is also encouraged to discuss the end-of-life cycle of smart materials in terms of recycling and repurposing.	15%

Individual or Group Submissions to Include:

- White Paper (Up to 10 pages)
- Supporting Poster (A3 Paper Size

Email Submission

uae@cibse.org

9 REGISTRATION & COMPETITION SCHEDULE

- Al Universities with Architectural and Engineering curriculum can participate.
- For group entry submissions, participants must collaborate with student colleagues from the same university.
- The competition is limited to Undergraduate and Post Graduate students, or alumni students whom have graduated within 24 months only.
- There is no entry fee for participation in the competition.
- Submissions must be sent via email to the designated competition email address: uae@cibse.org

Milestone Dates:

Applicant(s) Entry Closing Date	1st Sep 2025
Announcement of Finalists	15th October 2025
Announcement of Award Winners and Prize Distribution	30th October 2025

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10 AWARDS & PRIZES

Awards for winning submissions due to take place at our prestigious and highly anticipated Annual UAE Awards Evening, on October 30th, 2025.

Winners Prize:

- AED 5,000 prize money for the winning applicant(s).
- Article publishment of the winners submission on the CIBSE official blog page.
- Opportunity for the announced finalist(s) to present their a synopsis to technical committee CIBSE UAE

Runners Up Prize:

- AED2,000 prize money for the winning applicant(s).
- Article publishment of the winners submission on the CIBSE official blog page.
- Opportunity for the announced finalist(s) to present a synopsis of their submission to technical committee CIBSE UAE.

All Entries:

- All participating applicants shall be provided with participation certificates from CIBSE.
- All short-listed, runners up and winning applicants shall also be published on the CIBSE / CIBSE UAE social media platforms.
- All participating full time students can avail the free student membership from CIBSE, or at a significantly reduced rate for those studying on a part-time basis, gaining access to a plethora of exciting benefits.

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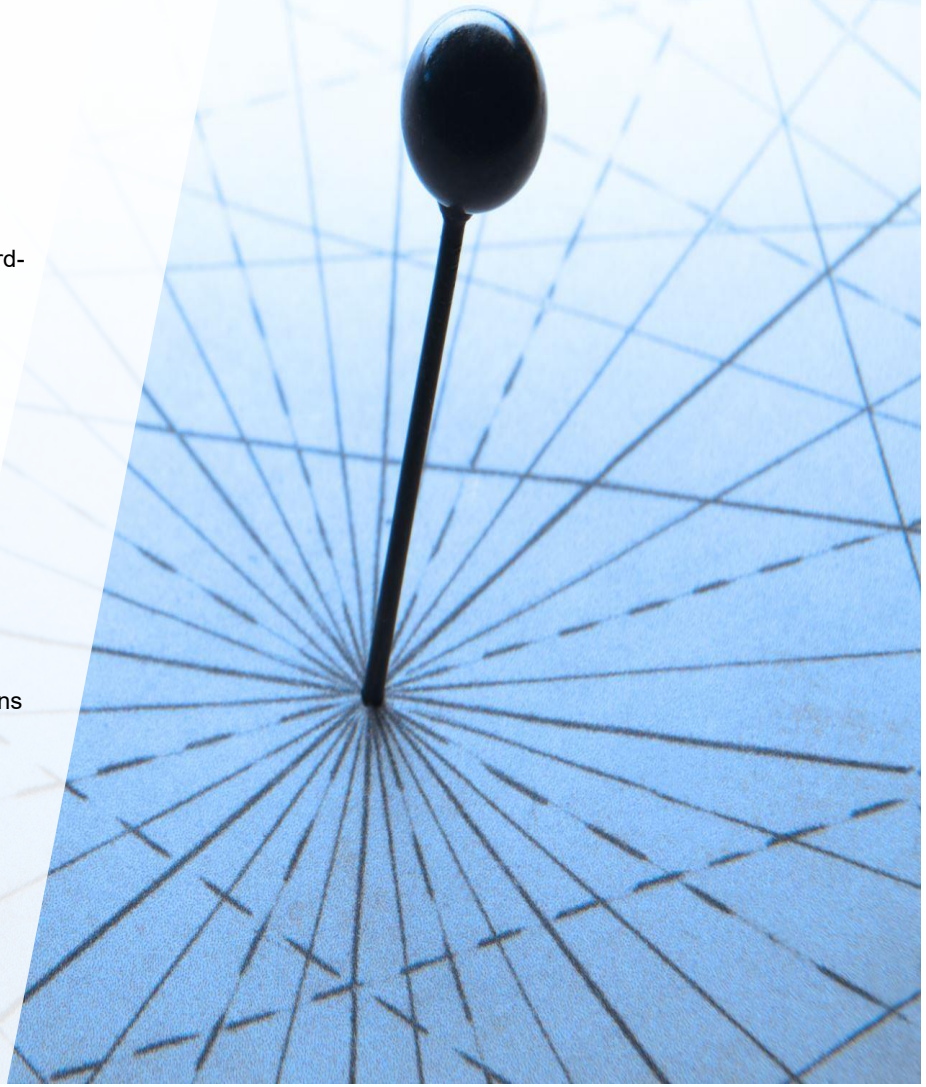
11 ELIGIBILITY

To be eligible for participation, candidates must adhere to the following criteria:

1. Student Status: Participants must be currently enrolled or graduated in last 24 months as students at a recognised University or educational Institution. Both individual students and student teams (max no. of members for a team = 4) are eligible to participate.
2. Team Composition: Teams can consist of students from same university and could be from various disciplines relevant to the competition's theme, such as civil engineering, architecture, environmental science, and sustainable design.
3. Submission Language: All competition submissions, including reports, white papers, presentations and posters, in English.
4. Measurement Units: All measurements and units used in the submission must adhere to the metric system.
5. Submission Requirements: Submissions must be sent via email to the designated competition email address: uae@cibse.org. Submissions must include all required documents and information as specified in the competition guidelines.
6. Originality and Copyright: Submissions must be original works of the participants. Works that have been previously published or infringe on third-party copyrights are not eligible. Proper references and citations must be provided for all sources used in the submission.
7. Submission Legibility: Entries must be clearly presented and legible. Illegible or poorly presented entries may not be accepted for review.
8. Submission Deadline: All submissions must be received by the specified due date. Any requests for extensions must be formally approved by the organiser prior to the original submission deadline.
9. Permission for Publication: If the submitted work contains copyrighted materials owned by others, participants must obtain necessary permissions from the copyright holders to include these materials in their submissions. Details of copyrighted works must be specified in the entry documents.
10. Organiser's Rights: By submitting their works to the competition, participating universities agree that the competition organiser committee has the right to publish articles or advertisements associated with the winning entries in various channels.
11. Evaluation Criteria: Submissions will be evaluated based on the assessment criteria outlined and the incorporation of feedback from regional and industry experts forming the judging panel.
12. Participating students or student teams are encouraged to carefully review and adhere to these eligibility criteria to ensure that their submissions are considered for review in the competition.



12 The Chartered Institution of Building Services Engineers

The Chartered Institution of Building Services Engineers (CIBSE) stands at the forefront of the building services engineering industry, providing a vital platform for professionals and students alike to engage, learn, and collaborate. With a rich legacy in shaping the future of sustainable and efficient building systems, CIBSE is a global leader in advancing the knowledge, standards, and practices that define modern construction and engineering.

CIBSE's commitment to fostering a thriving community of professionals extends to students as well. The Organization offers an exceptional avenue for students to become an integral part the building services engineering community. By visiting our main landing page at https://www.cibse.org/ students can access a wealth of resources and opportunities aimed at enriching their educational journey and professional growth.

For students pursuing full-time and professionally related courses, CIBSE offers an incredible opportunity to unlock a treasure trove of benefits at no cost. Even part-time students can access these benefits at a significantly reduced rate. The perks of student membership are extensive, including access to the renowned CIBSE Knowledge Portal. This repository houses a comprehensive collection of technical guidelines, standards, manuals, and more, catering to the wide spectrum of Building Services Engineering topics.

In addition to the valuable knowledge repository, student members receive a monthly subscription to the CIBSE Journal. This publication covers a broad array of subjects including Building Services, Engineering, Sustainability, and Industry developments, ensuring that members stay up-to-date with the latest trends and innovations.

Moreover, CIBSE offers access to professional development through CPD courses across various technical domains, fostering continuous learning. Being part of CIBSE means being connected to an extensive network of communities, societies, and networks that fall under its umbrella. This platform allows students to connect, learn, and collaborate with like-minded individuals who share their passion for engineering excellence.

Mentoring is a vital aspect of CIBSE's student membership, providing guidance from seasoned professionals to help shape students' careers. Lastly, CIBSE equips students with the knowledge and guidance needed to pursue professional registration within the institution, solidifying their status as accredited building services engineers.

For those based in the United Arab Emirates (UAE), our regional CIBSE UAE landing page serves as a gateway to all local CIBSE activities. By visiting https://www.cibse.org/get-involved/regions/united-arab-emirates, students can access region-specific information, events, and initiatives that cater to the unique needs of the UAE's building services engineering community.

We invite students to explore the dynamic world of building services engineering with CIBSE, were opportunities, knowledge, and connections await. Should you have any questions or wish to learn more, please feel free to reach out to us. We look forward to welcoming you into the vibrant CIBSE community and supporting your journey in the field of building services engineering.

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13 GET IN TOUCH

Have a question? Want to know how you can get involved in your region? Get in touch by email or connect with us on social media:

https://www.linkedin.com/company/cibseuae/

https://www.cibse.org/get-involved/regions/united-arab-emirates

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