# 国际工程师资质认证攻略简述 Strategy of Charted Engineer

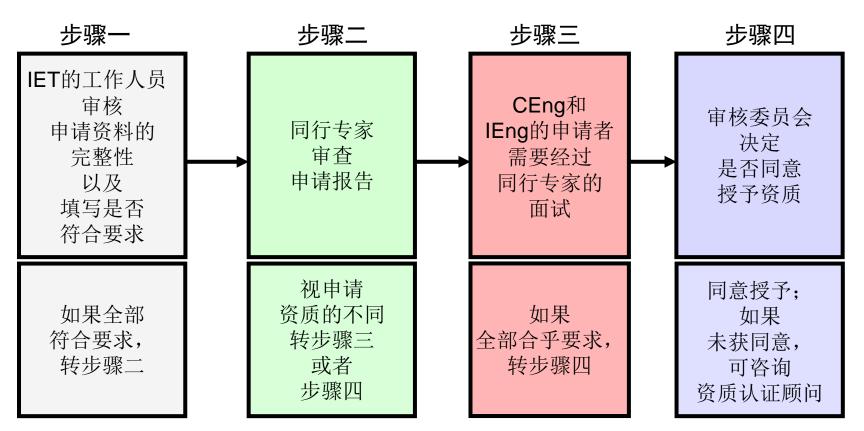
IET国际工程师资质认证实操方法、要点与技巧





### 申请人评估步骤

申请人的评估分为4个步骤,整个过程由同行专家按照英国工程理事会工程科技人才能力标准的要求进行。





### 国际工程师认证依据的标准UK-SPEC

- A 学习、应用知识的能力与创新:综合运用一般和专门的工程技术知识,对现有的技术和新兴技术的应用进行优化。
  - A1. 保持与提高理论技术水平, 探索应用新技术
  - A2. 注重科技进步与创新(包含科技创新、工程创 新和方法创新)
- **B** 工程实践能力。应用恰当的理论和实践方法,创新性地分析和解决工程问题。
  - B1: 开发项目的能力
  - B2: 良好的项目调研和工程方案设计能力
  - B3:设计方案的实施、有效性评价及改进的能力
- **C** 技术与商务领导能力:具备技术、商务和管理的综合能力、率领团队有效地完成工作任务。
  - C1. 策划有效的项目实施方案
  - C2. 良好的项目管理能力
  - C3: 促进团队建设、展现领导团队的能力
  - C4: 注重质量管理, 实现持续改进

- 人际交流能力:展现有效的交流沟通能力。
  - D1: 能够良好交流的英语水平 (听、说、读、写)
  - D2: 具备良好的技术项目说明能力. 通过参与、 引导讨论实现项目的改进与提高
  - D3. 良好的个人和社交的技能
- **E** 职业操守、社会责任和可持续发展:展示自己对职业标准的个人承诺,认识到自己对社会、职业和环境的责任
  - E1: 良好的职业道德. 遵守相应行为规范
  - E2. 注重职业健康与安全. 遵守相关标准、法律和 法规
  - E3. 可持续发展的方式从事工程项目,实现对社会,经济和环境的全面贡献
  - E4: 终身学习能力的培养和实践
  - E5: 职业道德





### 申请过程中的细节

5. INQUIRY 4. PMBOK • 认真填写推荐 3. FORM 信,特别注意 • 了解和掌握 两封推荐信不 2. PROJECT **PMBOK** • 认真填写各项 可雷同 1. UK-SPEC 表格,特别是 • 仔细回忆自己 申请表格和能 做过的项目和 力证明陈述 • 认真研读 参加的活动 •以"自我"为 UK-SPEC标准, 逐条对应 中心 • 又红又专



### 申请过程中所需的重要的资料

- 1. Application Form
- 有条不紊
- 注重数据(专利号)
- 职务表
- •明线-工作经历
- 暗线-UKSPEC

- 2. Evidence Statement
- UKSPEC
- •5个方面
- **17**个小点**-**更细的 表格
- ——对应
- PMBOK
- ISO9000
- OHSAS18001

- 3. Inquiry Form
- UKSPEC
- 不可重复

#### 4. PPT

- 我是谁
- 我做了什么
- 我怎么做的
- 我做的怎么样
- 我还想做什么



#### **APPLICATIOIN FORM**

Start Date	End Date	Course/Qualification Title	Educational Establishment	Classification	FT/PT/SW/ Distance Learning
Sep 2001	Jun 2005	Major: Bachelor of Science degree in Electronic Information Science and Technology Minor: Foreign Trade English	Central South University		FT
Sep 2005	May 2008	Master of Engineering degree in Physics Electronics	Central South University		FT

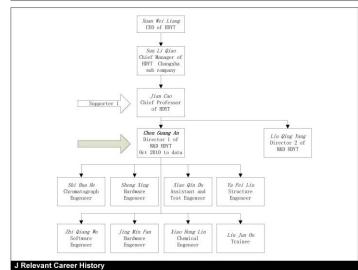
Start Date	End Date	Company	Accreditation number (if applicable
Jul 2003	Apr 2003	Computer Rank Examination Certificate National Education Examinations Authority the Ministry of Education of China.	35174301634032
May 2005	May 2005	New Oriental Education Group	
Jan 2006	Jan 2006	Swagelok Inc.	
Jul 2012	Nov 2012	Middle System Integration Project Management Engineer Ministry of Human Resources and Social Security The People's Republic of China	11007469
Jan 2013	May 2013	Senior Information System Project Management Engineer	

Date	Title			
2008.5	Some Key Technologies Study of Transformer Oil Dissolved Gas Analysis (CMFD) Master Dissertation Central South University TM855			
2008.7	A Quantitative Online Detector of Gas Dissolved in Transformer Oil Base SOFC (EI) Automation of Electric Power Systems Vol.32 No.14 TM911.4			
2009.5	Research of Tiny Combustible Gas Quantitative Sensor Based On Fuel Cell Technology (CSCD) Instrument Technique and Sensor No.5 TM911			
2009.7	Study on a novel online monitoring instrument for dissolved gas analysis (DGA) in transformer oil (EI) Chinese Journal of Scientific Instrument Vol.30 No.7 TM411 TM911.4			
2009.7	Applicable Research of Thermal Conductivity Sensor for Gases Based on MEMS (EI) CHINESE JOURNAL OF SENSORS AND ACTUATORS Vol.22 No.7 TP212.9			
2010.7	Application of Grey Correlation Analysis in Chromatograph Peak Identification of Transformer Oil (EI) Power System Technology Vol.34 No.7 TM855			
2008.2	Utility Model: The system of DGA based of the technology of MEMS. ZL200820233661.9			
2008.2	Utility Model: The separation used in Power Transformers. ZL200820233662.3			
2010.2	Utility Model: The membrane device for online detecting of DGA. ZL201020692295.0			
2010.2	Utility Model: Online insulating oil dissolved gas analysis gas chromatograph instrument. ZL201020687311.7			
2010.6	Invention: The method and device of GC for detecting dissolved gas in power transformer. ZL201010611860.0			
2013.2	Invention: Used to separate electric insulation oil gas GC column preparation method. Authorizing 201310106891.4			
2013.5	Invention: Power transformer aging degree detecting method. Authorizing: 201310203944.4			
2013.5	Invention: Fast separating device for transformer oil and dissolved gas. Authorizing: 201310203748.7			
2013.5	Utility Model: A simple GC instrument. Authorizing: 201320298435.X			

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2013.5	Utility Model: An assembly for detecting dissolved CO2 in transformer oil. Authorizing: 201320297547.3
2013.5	Utility Model: Simple test equipment for cabinet function of IPx5. Authorizing: 201320297712.5
2013.5	Utility Model: Equipment cabinet for transformer oil GC detecting device. Authorizing: 201320153125.9
Jun 2010	Report: Gas Chromatographic Technology Application in Power System, 2010 National GC Analytical Instruments and Technology Applications Seminar, Lanzhou, China.
Nov 2011	Report: Substation Equipment On-line Monitoring Technology Research Review, National State Grid Transmission and Transform Electricity Equipments Status Monitoring Technology Seminar, Beijing, China.

#### I Accountability Diagram



Start/End Employer & Job Title Date	Experience
Nov 2005 Beijing HDYT Power Technical Co., Ltd.  Intern of R&D.	I was responsible for DGA on-line detect product technical research.  I developed the instrument of transformer oil and dissolved gas separation.  I developed the transformer oil flow rate control system.  I assisted to GC technical development.  I participated in 2006 China-ASEAN expo as exhibitor in Nanning, China.  I participated to bid of Northwest Power Grid as a technology supporter.  I was responsible for 220kV Yushe Transformer Substation Intellectualization Construction project in Shanxi province, budget of Y 500,000.  I finished Master Dissertation Some Ker Technologies Study of Transformer Oil Dissolved

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#### **APPLICATIOIN FORM**

		Gas Analysis and get an engineering master's graduate degree.
Jun 2008	Beijing HDYT	→ I was responsible for MT6000 (the first and second generation DGA on-line detect produce).
Sep 2010	Power Technical	development.
	Co., Ltd.	I was responsible for MT6000 application in field with several different environments.
	32 17	I assisted to market propaganda of MT6000.
	Hardware	I was responsible for researching of TM8 from SERVERON
	Engineer and PM of R&D.	I established and managed of DGA laboratory.
	or K&D.	I developed gas chromatograph instrument for detecting combustible gases.
		I researched ZrO2 detector.
		I led my team to successfully research the MEMS detector.
		I led my team to successfully research the MENIS detector.  I led my team to research the method of online detecting status of transformers.
		I initiated and organized the newest technology development of DGA within the scope of a
		over the world.
		I was responsible for corporation HDYT and Shanghai Kechuang GC Company
		technology and business fields.
		I organized all team members to learn the national technology standard of GB17623.
		<ul> <li>I managed to develop product and process document of MT6000 (the first and secon generation).</li> </ul>
		I participated to internal audit according to ISO9000.
		I participated in 2009 National Transformer Devices Online Monitoring Technology
		Communication meeting in Beijing, China.
		I assessed to develop and install MT6000 instrument production line.
		♦ I was responsible for 500kV Gujiao Transformer Substation Intellectualization Construction
		project in Shanxi province, budget of ¥2,000,000.
		→ I was responsible for 500kV Yang Cheng Bei Transformer Substation Intellectualization  Transformer Substation  Tran
		Construction project in Shanxi province, budget of ¥2,200,000.
		I was responsible for 500kV Yu Ci Bei Transformer Substation Intellectualization      Transformer Substation      Tran
		Construction project in Shanxi province, budget of ¥2,200,000.
		<ul> <li>I was responsible for 500kV Jishan Transformer Substation Intellectualization Construction</li> </ul>
		project in Shanxi province, budget of ¥2,200,000.
		I was responsible for 500kV Jincheng Transformer Substation Intellectualization
		Construction project in Shanxi province, budget of ¥1,900,000.
		♦ I was responsible for 500kV Yangquan Transformer Substation Intellectualization
		Construction project in Shanxi province, budget of ¥1,800,000.
		♦ I was responsible for 500kV Changzhi Transformer Substation Intellectualization
		Construction project in Shanxi province, budget of ¥1,800,000.

To date	Power Technical	1	instrument.
	Co., Ltd.		I line manage 6 engineers: including 2 hardware engineer, 1 software engineers, 1 GC
	Director of R&D.		engineer, 1 structure engineer and 1 chemical engineer.
			> I led my team to success research all technology fields towards DGA instruments,
			including separation between oil and dissolved gas, micro combustive gas (ppm)
			detect, anti electromagnetic interference, and so on.
			➤ Up today, I have organized product MT6000 (3 <sup>rd</sup> generation) instruments number over
			117 all over the country.
			I was responsible for ensuring that MT6000 (3 <sup>rd</sup> generation) instruments are in normal running state all over whole life cycle.
			➤ I led my team to success finish third-party testing about MT6000 (3 <sup>rd</sup> generation)
			instruments in Southern Grid Company and Hunan Power Science and Technology Institute.
			<ul> <li>I managed to develop product and process document and SOP of MT6000 (the 3<sup>rd</sup> generation).</li> </ul>
			I get 1 invention patent and 2 utility model patents (details above).
		<b>*</b>	I am responsible for developing MT6000 (4th generation) DGA online monitoring
			instrument.
			➤ I line manage 8 members: including 2 hardware engineer, 1 software engineers, 1 GC
			engineer, 1 structure engineer, 1 chemical engineer, 1 test engineer and 1 trainee.
			➤ I led my team to success develop newest and fastest method of separation between
			transformer oil and dissolved gas within principle of vacuum.  I led my team to success develop GC new detecting method with principle SnO2.
			<ul> <li>I led my team to success develop G. new detecting method with principle ShO2.</li> <li>I led my team to success research Non-Dispersive Infra-Red (NDIR) technology for detecting CO2.</li> </ul>
			I led my team to success develop GC column for separating mixing gases of: H2, CO, CH4, C2H4, C2H6 and C2H2.
			<ul> <li>I led my team to success finish third-party testing about MT6000 (4<sup>th</sup> generation) instruments in National Electric Power Science Research Institute (NEPSRI).</li> </ul>
			<ul> <li>I managed to develop product and process document and SOP of MT6000 (the 4<sup>th</sup> generation).</li> </ul>
			➤ I develop PM skill of setting target, quality control, cost control, schedule control,
			communication skill, team members performance management, purchasing management and risk analyse skill.
			> I have finished 3 invention patents and 4 utility model patents (details above).
		<b>*</b>	I am responsible for technology and Production Corporation between HDYT and Serveron,
			BPLG, USA.  L line manage 3 engineers.
			I line manage 3 engineers.  I am responsible for making whole management plan.
			I am responsible for making whole management plan.      I am responsible for analysis the structure and electronic PCB.
			I manage to develop and ensure the approved vender list (AVL).  I manage to develop and ensure the approved vender list (AVL).
			I am responsible for communicating directly with Supply Chain Operations of BPL  I am responsible for communicating directly with Supply Chain Operations of BPL
			Global.
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#### **UK-SPEC**

#### Detailed Support Evidence for C-Eng Recognize MIET Chen Guang An 1100305904 The Competence and Commitment Standards Use a combination of general and specialist engineering A knowledge and understanding to optimise the application of existing and emerging technology. Sep 2005 to May 2008. Master of Engin Electronics in C.S.H.with full scholarship . After graduation. I continue to extend the Maintain and extend a sound theoretical approach in fields related with my work such as Analytic enabling the introduction and exploitation of new and Chromatography Science, Materials Scien advancing technology and other relevant developments. identify my professional advantages and li . I study many engineering codes, standa A1 This could include an ability to: about my research, for example, Q/GDW54 . Identify the limits of own personal knowledge and skills Equipments and Online Monitoring Devices · Strive to extend own technological capability · Broaden and deepen own knowledge base through · I deeply conduct the molecular dynamic

Engage in the creative and innovative development of engineering technology and continuous improvement systems.

This could include an ability to:

research and experimentation.

- · Establish users' needs
- Assess marketing needs and contribute to marketing strategies
- · Identify constraints and exploit opportunities for the development and transfer of technology within own chosen CO and CH4. Because SnO2 detector car
- · Promote new applications when appropriate
- . Secure the necessary intellectual property rights
- · Develop and evaluate continuous improvement systems.

Apply appropriate theoretical and practical methods to the

· Explore the territory within own responsibility for new

analysis and solution of engineering problems

Identify potential projects and opportunities

This could include an ability to:

processes, systems and services

the viability of opportunities.

 Head my design team to finish the GC/ instrument on the base of SnO2 (stannic replace old GC instrument with the princip dioxide). For the sake of cost, the former is Besides, during the production, the former

theoretical approach to finish designing m

line monitoring production named MT6000

characteristic gas dissolved in transformer

· In my career, I had been responsible to

develop DGA on-line monitoring instrumen

generation to 4th generation during last 7

. The drive power is to meet the developi

Every improvement comes from market res

. The DGA online monitoring instrument i

including electronics, chemistry, machinery,

. In the development of DGA instrument

detector into new GC model. Through big

illustrated the SnO2 detector not only has g

H2, C2H4, C2H6 and C2H2, but also has g

. In the improvement process from DGA N

4th. I lead my team to develop vacuum dec

membrane decassing method so as to spi

from 24 hours to 30 minutes. And now, wi

continuous improvement. I lead my team to

degassing method named headspace deg

molecular dynamics and so on.

latter, for example, the number of adapter Review the potential for enhancing engineering products, and the latter is 46.

 During the SnO2(stannic oxide) GC inst . Use own knowledge of the employer's position to assess process, I lead my team to formation propurchase specifications.

Conduct appropriate research, and u development of engineering solutions

This could include an ability to:

- · Identify and agree appropriate rese · Assemble the necessary resources
- · Carry out the necessary tests
- · Collect, analyse and evaluate the
- · Draft, present and agree design re account of cost, quality, safety, reliabi for purpose and environmental impa · Undertake engineering design

#### Implement design solutions, and eval effectiveness

This could include an ability to:

- · Ensure that the application of the appropriate practical outcome
- Implement design solutions, takin constraints
  - · Determine the criteria for evaluati
  - · Evaluate the outcome against the
  - Actively learn from feedback on design solutions and build best gract

C Provide technical and commercial lea

Plan for effective project implemen

This could include an ability to:

- · Identify the factors affecting the
- · Lead on preparing and agreeing and method statements
- · Ensure that the necessary res brief the project team
- · Negotiate the necessary contract other stakeholders (client, subcont

Plan, budget, organise, direct and control tasks, pe

This could include an ability to:

improvements.

- · Set up appropriate management systems · Agree quality standards, programme and budge
- legal and statutory requirements
- . Organise and lead work teams, coordinating p
- . Ensure that variations from quality standards. and budgets are identified, and that corrective acti Gather and evaluate feedback, and recomme

Lead teams and develop staff to meet changing to and managerial needs.

This could include an ability to:

- · Agree objectives and work plans with teams an
  - . Identify team and individual needs, and plan f development
  - . Lead and support team and individual develop
  - · Assess team and individual performance, and p feedback

Bring about continuous improvement through qual management.

This could include an ability to:

- · Promote quality throughout the organisation as customer and supplier networks
- . Develop and maintain operations to meet qualit

Communicate in English with others at all levels

· Direct project evaluation and propose recomm for improvement

#### D Demonstrate effective interpersonal skills

This could include an ability to:

- · Contribute to, chair and record meetings and di
- · Prepare letters, documents and reports on com
  - · Exchange information and provide advice to ter and non-technical colleagues.

#### Present and discuss proposals

This could include an ability to:

Personal and social skills

This could include an ability to:

changing interpersonal situations

relationships, and resolve conflicts.

- · Prepare and deliver presentations on strategic matters
- · Lead and sustain debates with audiences
- . Feed the results back to improve the proposals

· Know and manage own emotions, strengths and

. Be confident and flexible in dealing with new and

· Create, maintain and enhance productive working

· Identify, agree and lead work towards collective goals

Be aware of the needs and concerns of others

. In the beginning of DGA instrument MT6000(4th edition) development, many engineers don't clear the develop principle for complex system. I analyzed the system complexity combined with development experience and conducted to a presentation named How to Finish Complex System Design and I suggested adopting high cohesion & low coupling model. At the end of meeting, most of leaders, experts and engineers agreed with me and the project

- . As a representative. I took part in the technical exchange conference organized by National Grid in 2011. The orientation is to establish the limit of detection of C2H2 (ethylene). Before the conference, the on-line monitoring limit of detection of C2H2 (ethylene) was equal to off-line detecting, which was 0.1 ppm. After the conference, I illustrated practical situation and effort, the experts changed on-line monitoring standard to 0.5 ppm and they modified the
- . I will carry my point to finish one thing need 4-5 persons to support, I will organize meeting to explain the goal, methods and responsibilities of every one. Frequently, one or two persons won't do what I asked for. I will talk with them privately about the thing to ensure the true reasons. After that I will make them do what I ask for
- . I am a warm hearted man. I help other no matter when and where if only he needs. One day after Chinese festival, one of my colleagues suddenly was attacked by convulsions illness. I and another colleague Lin Xiao Hong saved him at once. And then I send him to nearest hospital driving my private car right away. At last he was out of life danger because we unremitting efforts. I and Lin were both very
- Demonstrate a personal commitment to professional E standards, recognising obligations to society, the profession and the environment.

Comply with relevant codes of conduct

This could include an ability to:

- E1 . Comply with the rules of professional conduct of own professional body · Lead work within all relevant legislation and regulatory
  - frameworks, including social and employment legislation

Manage and apply safe systems of work

This could include an ability to:

· Identify and take responsibility for own obligations for

- health, safety and welfare issues
- . Ensure that systems satisfy health, safety and welfare
- and risk management systems
- · Manage, evaluate and improve these systems.

- · As director of R&D. I commit to all relevant legislation in China. including: Labor Law. Contract Law, and so on.
- · As a PM and an engineer, I abide by relevant codes of conduct strictly. I keep secret of company strictly.
- . I carry out formal H&S training named Safe Work Specification in Power Transformer Substation for all of my team members termly. . In my company, we carry out safety audits twice pre year

according to ISO28000 by the third party institution.

. I am responsible for DGA laboratory which is the base matrix of research combine with tiny quantity of CO (carbon monoxide) (under · Develop and implement appropriate hazard identification 50 ppm in air). For the sake of safe, I fix exhaust system to each GC instrument for the safe of team members.



### **UK-SPEC**

能力点	关键点	方法
A1	Theoretical Approach	教育经历
A2	Creative and Innovation	成果(论文,专利,项目)
B1	Identify potential projects and oppertunities	理论与实践相结合 学以致用
B2	Conduct appropriate research	研究能力, 创新能力
В3	Implment design solutions	设计能力,工程实践
C1	PP-Project Plan	项目策划
C2	PM-Project Management	项目管理
C3	TM-Teamwork Management	人力资源管理
C4	QM-Qulity Manegement	质量管理
D1	Good English	现场沟通,材料
D2	Project Communication	工程沟通能力
D3	Personal Communication	个人沟通能力
E1	good professional ethics	职业道德
E2	Manage and apply safe	职业安全
E3	Sustainable Development	环境安全
E4	CPD	个人发展和团队发展
E5	Professional Ethics	职业道德



### **PMBOK**

/m 20 <del>Let</del>	项目管理过程组						
知识域	启动	计划	执行	监督和控制	收尾		
1-整体管理	制定项目章程	制定项目管理	指导与管理项	监控项目	项目收尾		
1-登冲官理	初步范围说明	计划	目执行	变更控制	项目収耗		
		范围规划		范围确认			
2-范围管理		范围定义		范围控制			
		创建WBS		467 End 127, that			
		活动定义					
		活动排序					
3-进度管理		活动资源估算		进度控制			
		活动历时估算					
		制定进度计划					
4-成本管理		成本估算		成本控制			
1 MT BY		成本预算		1900-1-11-10-1			
5-质量管理		质量规划	质量保证	质量控制			
6-人力资源管理		人力资源计划	组建团队	管理团队			
0-人力黄源官理		八刀页源日划	团队建设	官理例於			
7-沟通管理		沟通计划	信息发布	绩效报告			
7 19 70 日 72		19,001 20	自然久事	干系人管理			
		风险管理计划					
		风险识别					
8-风险管理		定性风险分析		风险监控			
		定量风险分析					
		风险应对计划					
9-采购管理		采购计划	招标	合同管理	合同收尾		
3 不照目生		编制合同	供方选择	口門音柱	口門权用		

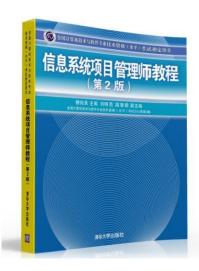




### **PMBOK**

	项目管理过程组						
知识域	启动	计划	执行	监督和控 制	收尾		
1-整体管理	制定项目章程	制定项目管理	指导与管理项目	监控项目	项目收尾		
1-金件目理	初步范围说明	计划	执行	变更控制	项目収尾		
		范围规划		范围确认			
2-范围管理		范围定义		范围控制			
		创建WBS		化固定则			
		活动定义					
		活动排序		进度控制			
3-进度管理		活动资源估算					
		活动历时估算					
		制定进度计划					
4 <del>-1 -1 -</del> 605 mm		成本估算		<del></del>			
4-成本管理		成本预算		成本控制			
5-质量管理		质量规划	质量保证	质量控制			
6-人力资源管理		   人力资源计划	组建团队	管理团队			
0 八刀贝娜自生		八刀贝砾竹刈	团队建设				
				绩效报告			
7-沟通管理		沟通计划	信息发布	干系人管			
		同 7人经证 11.4年		理			
		风险管理计划					
O F3 85 555		风险识别		다 7人 UE 12			
8-风险管理		定性风险分析	-	风险监控			
		定量风险分析	_				
		风险应对计划	lar I =				
9-釆购管理		采购计划	招标	合同管理	合同收尾		
		编制合同	供方选择	日1.3日本	· • · · · · -		







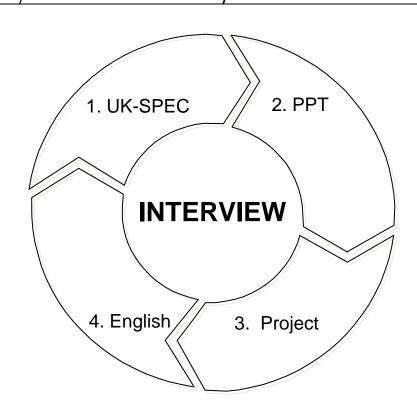
### 面试的步骤与细节

1. 身份核查

2. 自我介绍

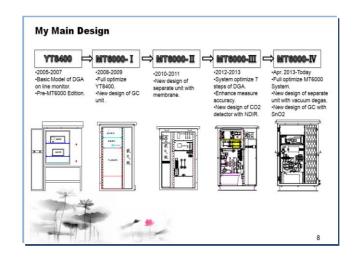
3. 专业核证

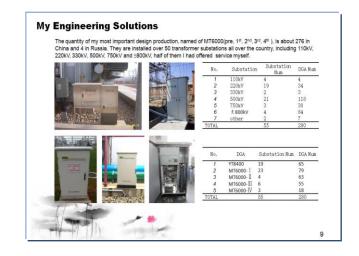
4. 能力核证

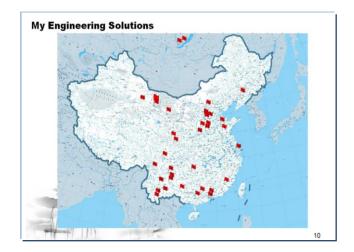




#### **PRESENTATION**



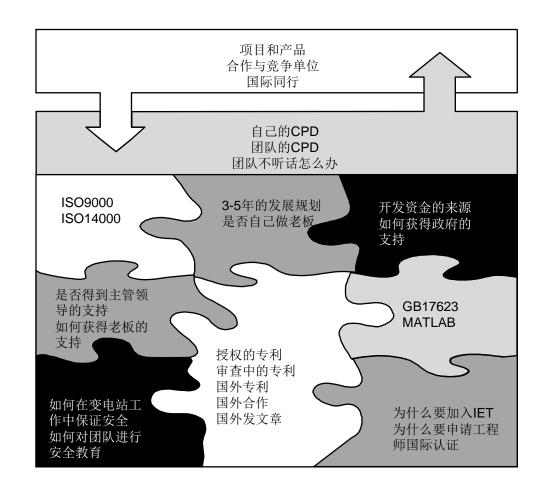








### Questions n Presentation





### 总结

#### 1个核心

- UK-SPEC
- •5个方面
- 17项基本素质



**UK-SPEC ENGINEERING COMPETENCE** 

#### 2个精心

- 精心准备材料
- 精心完成面试

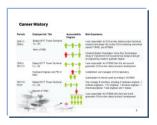




#### 3个经历

- 学习经历
- •工作经历
- 项目经历





#### 4个清楚

- ●想清楚
- ●做清楚
- 说清楚
- 写清楚

#### 5个注重

- 注重细节
- 注重创新
- 注重应用
- 注重责任
- 注重持续



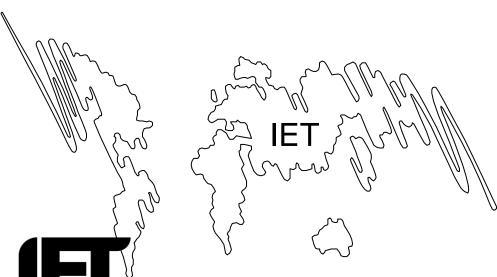
### 經世致用





### 感谢大家的聆听

## Thank you



Collective inspiration



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