Overview of the Human Performance Learning Pathway for the Energy Sector

The Human performance pathway is just that – a pathway for those without a human factors/ergonomics background to learn how to apply human factors/ergonomics tools and techniques in their organisation and gain an industry qualification from the Energy Institute and Chartered Institute of Ergonomics and Human Factors. Such qualifications have historically not been open to people who do not have a university degree in Psychology, Human Factors or Ergonomics.

The Pathway is a self-taught training course. It is done in your own time, and at your place of work. You will need to work within – or have access to – an appropriate organisation to be able to complete the Pathway, as you will be required to conduct exercises to understand and review how your organisation manages human factors/human performance and ergonomics.

The Pathway is broken up into 3 levels, plus an introductory eLearning course.

- eLearning without certification - FREE
- eLearning with certification
- Level 1
- Level 2
- Full Human Performance Learning Pathway for the Energy Sector (Level 3)

The eLearning course (2 hours) is suitable for everyone and should ideally be taken by most people in the organisation. Level 1, 2 and 3 will be suitable for people at different stages of their careers and with differing levels of responsibility for managing human performance in their organisations.
Those who complete levels 1, 2 and 3 of the Pathway can apply for Technician Grade membership of the Chartered Institute of Ergonomics and Human Factors.

Each level of the pathway involves:
- Pre-read
- Desktop and practical exercises – submit a written activity report and log-book
- End of module examination (levels 1 and 2 only)

Tutors will be on hand to answer questions and provide support.

You are required to specialise as you move through the pathway, with all 9 modules completed at level 1, 5 modules completed at level 2, and 2 modules completed at level 3. However, you don't need to take all levels of the pathway if you don't want to – go as far as you want to.
Table 1 provides a summary of all the activities you must complete for each module (note that each activity will involve several questions/exercises, not covered in detail in Table 1).

Table 1: What each level of pathway covers:

	Level 1	Level 2	Level 3
Cost	£450 (excl. VAT)	£950 (excl. VAT)	£1750 (excl. VAT)
Who is it for?	Anyone who has a role in managing safety – supervisors, managers, engineers	Anyone who needs to manage human factors or with responsibility in the subjects covered by the modules – safety managers, operations managers etc.	Anyone expecting to become a human factors manager or lead
Completion criteria	✓ Complete all 9 modules	✓ Complete 5 modules	✓ Complete 2 modules
What is involved?	✓ E-learn ✓ Pre-read (basic, EI HF briefing notes) ✓ Desktop exercises ✓ Practical exercises ✓ End of module exam (70% pass mark)	✓ Pre-read (intermediate, relevant parts of industry good practice guidance, standards) ✓ Desktop exercises ✓ Practical exercises ✓ End of module exam (70% pass mark)	✓ Pre-read (advanced, industry good practice guidance) ✓ Desktop exercises ✓ Practical exercises
Module			
Designing for People	✓ Review layout and design of a workstation ✓ Ergonomics of workstation design ✓ Assessment of hand tools against checklist	✓ Identify how organisation addresses design of tools and equipment, how human centred design is incorporated ✓ Compare findings against industry good practice. Identify gaps and how to close them ✓ Review of office shelf height using anthropometric data, explaining your workings and conclusions ✓ Review of foot clearance space using anthropometric data, explaining your workings and conclusions ✓ Option 1: Review a piece of equipment that includes a manually operated valve or visual display/gauge, using anthropometric data	✓ Apply design standard ISO 9241-210 to a video case study, and write about some key concepts. ✓ Select 3 principles from ASTM F1166, and apply them to your site/facility ✓ Review the scope of US DoD human factors standards, describe how they interact, write a project requirement statement for each standard, and compare one of the standards against EI/IOGP report 454 ✓ Apply ASTM F1166 to several case studies ✓ Interview supervisors and operators to test the extent that designs consider end users

		✓ Option 2: Develop a hand and power tool checklist based on industry good practice, then apply that to range of tools used in the organisation ✓ Describe steps to make sure equipment is designed for the user ✓ Feedback your findings to the organisation	✓ Design a 30-60 minute training session for people in your organisation responsible for engineering and design ✓ Identify systematic improvements to how your organisation designs for people, covering training, tools and guidance used, and verification systems/processes ✓ Feedback your findings to the organisation
Communications	✓ Review of communication types used ✓ Review safety critical communications using a checklist ✓ Discover potential miscommunication opportunities on site ✓ 3-way communication ✓ Identify how to improve communications on site	✓ Compare your organisation's management system for communications against industry good practice ✓ Identify, and relate your organisation's communications practices to, incidents that involved communication or shift handover as causes ✓ Option 1: Observe, describe, and analyse communication during a crane lifting activity ✓ Option 2: Discuss shift handovers with supervisors and observe and analyse shift handovers using industry good practice guidance/checklists ✓ Feedback your findings to the organisation	No module at level 3
Applied HF in Design	Option 1: Control rooms ✓ Describe the control room ✓ Discover issues using checklist ✓ Compare alarm register vs. EEMUA prioritisation levels ✓ How can alarm management be improved?	✓ Identify human machine interface (HMI) standards applied in your organisation ✓ Compare HMI practices against industry good practice ✓ Review online retail/shopping website from perspective of 2 different types of user	✓ Visit a control room and complete an evaluation of it using the 'advanced control room checklist' ✓ Provide insight into improvements to the console design/HMI, control room layout, environmental conditions, and alarms

	Option 2: Signs and warnings ✓ Describe the organisation's specification for signs and warning labels ✓ Compare signs against the specification ✓ Identify issues faced if no specification exists ✓ Review 2 warning signs, talking to those who need to comply ✓ Identify opportunities to improve	✓ Review computer software package ✓ Perform an evaluation of a physical control panel/interface ✓ Option 1: Visit control room and complete an assessment using a design checklist ✓ Option 2: Apply design checklists to 2 control panels/user interfaces ✓ Based on earlier activities, identify how you can influence systemic improvements to interface design in your organisation ✓ Feedback your findings to the organisation	✓ Identify other improvements and feedback your findings to leadership ✓ Consider the update of a control room to a digital control room. Describe the human factors considerations needed during such a project, list the activities you will need to undertake, list the main standards applicable, and other considerations that may be required once the new system has been implemented ✓ Solve a variety of issues in a hypothetical control room leading to musculoskeletal disorders, including glare, layout of the screens, ventilation and noise ✓ Option 1: Develop an operational concept for a control room upgrade or new control room ✓ Option 2: Participate in or lead a safety critical tasks analysis related to a control room ✓ Option 3: Participate in a control room environmental monitoring or lighting assessment ✓ Feedback your findings to the organisation
HF in Projects	✓ Describe how a piece of equipment is used and operated ✓ Compare the equipment against design principles (importance, frequency of use, function, sequence of use, access, consistency) ✓ Identify how the equipment can be improved	✓ Understand how your organisation manages human factors in projects and compare your findings to industry good practice ✓ Identify a recent project or design change and describe what human factors activities were involved ✓ Attend a HF-related design review, and describe your observations and suggestions	✓ Identify an infrastructure project requiring human factors integration. Describe its scope ✓ Participate in the preparation for and delivery of an HF risk screening workshop, using the approach described in IOGP 454. Record the findings of that screening ✓ Participate in at least 2 different human factors activities in the

		✓ Work with engineering team members to verify that HF aspects have been captured in a design; describe your findings ✓ Feedback your findings to the organisation	projects, e.g. 3D model review, valve criticality analysis, critical tasks analysis, etc. Describe what you did ✓ Design, develop and deliver HF awareness training to the project team to help embed HF design principles ✓ Reflect on your work activities supporting the project. Note down findings that can be fed back to improve the HF integration in projects approach in the organisation and report these to appropriate person ✓ Feedback your findings to the organisation
Incident Investigation	✓ Participate in or review an investigation/near miss report and carry out behaviour analysis using provided tools (basic analysis tool or 4 step approach) ✓ Identify performance shaping factors that influenced behaviour	✓ Understand the organisation's process for incident investigation and learning, and compare against industry good practice ✓ Analyse a case study of an incident for hindsight bias, judgmental explanations of behaviour and other biases, and suggest alternative explanations for why the incidents occurred ✓ Lead or participate in an investigation, complete a HF analysis of the event and conduct two interviews ✓ Generate a timeline of the incident ✓ Create an Accimap of the incident ✓ Feedback your findings to the organisation	✓ Review investigation reports and data from 15-20 incidents from your organisation and undertake analysis/trending related to the human and organisational factors involved/identified ✓ Find out how unplanned events that may not have a safety implication are investigated. Analyse the HF elements. Build a business case to improve the investigation approach ✓ Coach a small group of incident investigators from your organisation on HF in investigations ✓ Conduct barrier analysis using CHIEF whitepaper on a complex incident investigation. Describe the barriers that failed, and feedback to your organisation on how they can improve their investigation process ✓ Lead or participate in an investigation of an incident or

			✓ unplanned event. Apply a range of methods and skills. Provide the details and findings ✓ Identify ways you could influence a systematic improvement of HF in investigations in your organisation ✓ Feedback your findings to the organisation
Leadership, Supervision and Culture	✓ Interview front line operators on their views of leadership, supervision and culture on site using provided checklists as guidance ✓ Make recommendations to improve at least the top 3 issues you identified	✓ Understand how leaders' safety leadership is developed in the organisation, and compare your findings against industry good practice ✓ Use behavioural marker observation sheets ✓ Discuss with operations manager or supervisor how decisions are made which impact safety, how safety leadership is addressed and how the organisation learns from failures ✓ Discuss with frontline workforce their views on safety leadership, how and whether management address their concerns, and how leaders engage them on safety ✓ Carry out focus group discussion on safety leadership ✓ Summarise focus group findings ✓ Feedback your findings to the organisation	✓ Psychological safety: interview supervisors and senior managers on the topic of psychological safety. Work with them to identify what they do to foster psychological safety and what can be improved. Facilitate a focus group with front line personnel on 'speak up' and psychological safety. ✓ Safety culture: Gather evidence of the safety culture of the organisation and compare against reading material. ✓ Just culture: Review a case study on why things go wrong. Compare what you read on just culture to your organisation's processes Compare different just culture models ✓ Review an incident involving rule breaking and consider how supervision played a part. Introduce the just culture framework to an operational leader, applying it to the worker and supervisor involved in the incident ✓ Generative leadership: Select a specific critical work activity from your organisation. Identify, the key individuals involved with that work

			activity. Arrange brief interviews with each; you will adopt the appreciative / humble inquiry / generative leadership approach to engaging with the interviewers ✓ Processes and systems: Describe any processes that are in place to drive leadership interactions with the front line. Compare what you find out against the materials provided in this module. ✓ Feedback your findings to the organisation
Procedures	✓ Study a 'walk through/talk through' of a task (provided) ✓ Carry out a 'walk through/talk through' of a procedure on site ✓ Complete a procedure report identifying improvements to be made * Note this must be a different procedure to the Task analysis module	✓ Find out how your organisation manages development of procedures and compare against industry good practice ✓ Review a case study procedure using industry guidance and your own knowledge ✓ Carry out a desktop Task Improvement Process activity on an example procedure ✓ Complete a Task Improvement Process activity on a safety critical procedure in your organisation ✓ Feedback your findings to the organisation	✓ Complete a Hierarchical Task Analysis on a common daily task that you are familiar with. Write a simple step by step procedure ✓ Develop a HTA on the critical portions of a new procedure ✓ Select a variety of procedures in your organisation and complete a desktop review ✓ Use a matrix to compare and contrast the three procedures on style, format and content. Provide 2 examples of issues or improvement to the usability of the procedures that you identified ✓ Conduct interviews with operations leaders, procedure end users and procedure developers in your organisation to test the extent of HF integration into procedures ✓ Find out about the process for procedure updates being captured and added into procedures ✓ Develop a short (30mins to 1hr) and engaging training session for people in your organisation

			✓ responsible for writing or reviewing procedures ✓ Identify ways you could influence a systematic improvement of HF in procedures in your organisation ✓ Feedback your findings to the organisation
Task Analysis	✓ Study a 'walk through/talk through' of a task (provided) ✓ Carry out a 'walk through/talk through' of a procedure on site ✓ Complete a procedure report identifying improvements to be made * Note this must be a different procedure to the Procedures module	✓ Understand how your organisation understands HF risks (e.g. human reliability analysis) ✓ Compare your findings against industry good practice ✓ Carry out a HF screening exercise of 10 tasks and prioritise them for further analysis ✓ Lead an operator and process engineer to conduct a Task Improvement Process analysis on one of the tasks ✓ Feedback your findings to the organisation	✓ Complete a Hierarchical Task Analysis on a common daily task that you are familiar with ✓ Conduct HTA and HEA (per SCTA EI guidance) on a portion of a complex critical activity ✓ Work with and coach personnel in your organisation to facilitate Task Improvement Process (TIP) effectively. Assess their competency and follow-up with them after you have trained them ✓ Compare the pros and cons of TIP, Safety Critical Task Analysis, and one method of your choice of Quantitative Human Reliability Assessment ✓ Feedback your findings to the organisation
Workload, Stress and Fatigue	✓ Identify an activity or role prone to stress/fatigue/ workload issues and talk to the person ✓ Compare their experiences against the provided checklists ✓ Identify opportunities for improvement	✓ Understand how stress is managed in your organisation and compare your findings against industry good practices ✓ Prepare an engaging workshop session based on provided slides ✓ Organise and run a workshop on stress, working through actions to reduce stress with the team ✓ Understand how fatigue is managed in your organisation and	✓ Review the incident report from NTSB about a fatal helicopter incident, analysing the HF aspects, particularly related to workload and stress ✓ Pick a task, and carry out walkthroughs, interviews, and timeline analysis, to analyse the workload involved ✓ Using a case study, conduct a staffing assessment using the

		compare your findings against industry good practices ✓ Complete exercise to assess level of fatigue in self and two other people (provided examples) ✓ Carry out fatigue assessment of 3 people in your organisation ✓ Create a business case for the management of stress and fatigue in your organisation ✓ Feedback your findings to the organisation	method in EI safe staffing arrangements guidance ✓ Option 1: Complete physical assessments and a ladder assessment on two different major incident scenarios ✓ Option 2: Undertake a workload assessment of two people engaged in critical roles ✓ Find out how workload and staffing levels are managed in your organisation and compare against good practice ✓ Feedback your findings to the organisation