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# Spreading the Word – The Use and Future of IChemE's Fundamentals of Process Safety Course

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Phil Eames, Andrew Hudson, Ken Patterson



# (Very) Brief history of FOPS

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- Written 2007-8 in response to Texas City and feeling that Process Safety was still not central in High Hazard Industry
  - Baker Report on OH&S vs Process Safety
- Prime mover Robin Turney from IChemE
  - Starting point: work BP had done on PS training
  - Generalised into a “Fundamentals” course
- Long discussion on content & form:
  - Key audience: CEng graduate, 3-7 years experience, working towards Chartership
  - Modules 1-1.5 hrs
  - Intro - exercise - feedback - facts & key learning points

# Process safety

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Aim was to put Process Safety together as a system, hence relatively simple PS definition:

- *Process safety is a systematic framework for managing the integrity of hazardous processes*
- *It uses a blend of engineering, management and leadership skills focused on preventing major accidents; particularly explosions, fires and toxic releases*
- *It focuses on three key aspects:*
  1. *Plant (hardware)*
  2. *Process (systems)*
  3. *People*

# Course aims

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- Understand the key principles of process safety and its management
- Understand the consequences of poor process safety (human, environmental and business consequences)
- Be aware of the key factors influencing the basis for process safety
- Understand the hazards associated with process plant and how the risks can be controlled

*Question: Will the Definition of Process Safety and the Course Aims continue to stand up in 2020 and beyond?*

# Course evolution and success

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- First public course 2008
  - Range of attendees, feedback good, some revision
- Since 2009 run several times a year, public courses in: UK, Malaysia, South Africa, Australasia
- Also run Company-in-house, often in customised form
- Now ~2,000 attendees; feedback continues to be good

# 2018 Feedback

<b>Aspect of Course</b>	<b>Rating of Course - % of Delegates</b>		
	<b>Excellent</b>	<b>Good</b>	<b>Good or Excellent</b>
<b>Content</b>	<b>77</b>	<b>21</b>	<b>98</b>
<b>Teaching</b>	<b>82</b>	<b>13</b>	<b>95</b>
<b>Materials</b>	<b>65</b>	<b>31</b>	<b>96</b>
<b>Workshops</b>	<b>69</b>	<b>28</b>	<b>97</b>
<b>Objectives</b>	<b>54</b>	<b>45</b>	<b>99</b>

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  - Revision in 2014



# Contents of FOPS Course

0	Introductions	11	Technical Risk Assessment
1	Importance of process safety	12	Operations
2	A model for process safety	13	Asset Integrity
3	Hazard and Risk	14	Management of Change
4	Hazard identification	15	Management Systems
5	Consequences: Toxicity & Fire	16	Human Factors
6	Consequences: Explosions	17	Leadership & Culture
7	Chemical Reaction Hazards	18	Process Safety Performance
8	Flammable Atmospheres	19	Multi-stage Exercise
9	Project Development	20	Emergency Response
10	Design Safety		Assessment & Feedback

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- Copied by other groups but still “Original & Best”?

# FOPS course change objectives:

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- **Maintain FOPS as the “Go-to” course for Process Safety training**
- Course to remain relevant, accurate and up to date
- Speak clearly and attractively to future delegates
- Continuing supervisory group who are looking at the course on a regular, perhaps biennial basis

# Potential FOPS course changes:

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- More use of case studies/exercises
- More short videos
- International relevance e.g. reference international standards and guidance
- Industry sector relevance – this probably means widening the breadth of materials e.g. case studies from water, power etc.

# Potential FOPS course changes

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- Assessment style
  - on-line polling to test/confirm understanding
  - Timing
- Additional supporting material
- Delivery options
  - 4/5 days continuous
  - Several short modules
  - Tutor style/competence

# (Some) Questions for discussion:

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- How do we build a Supervisory Group to ensure the course is kept up to date?
- Should such a group have oversight of course tutors and if “yes”, how?
- What should be the future of the course assessment? And how should it be moderated to ensure it is marked consistently?
- How can the course deliver better International and cross-cultural relevance?
- What alternative methods of delivery are useful and should be considered?