# Systemsys Ltd

**Improve your business with Training & Consultancy on Process based Systems & obtain third party Approval when required, e.g. to ISO 9001 &/or IATF16949.**

**See 'Contents' & the SYS guide, numerous published articles & the website.**

***Systemsys:*** ***"Providing Support to Industry since 2005"***

*Note this iBrochure can be saved in different formats, e.g. iBooks on Apple.*

# Introduction to Systemsys Ltd

***Systemsys Ltd* helps companies, particularly in the UK, to improve their business performance using the Process Approach and obtain third party Approval where this is required.**

## Training & Consultancy & Contact

We provide Training & Consultancy Support for Internal Auditors, Lead Assessors, Management, and Product & Process Engineers. **See Page 4.**
Support is outlined in the ***Consultancy/Workshop*** sections and includes identifying company's key processes and mapping them out with their Key Performance Indicators. Levels 1 (System Map) & 2 (Process Maps) of a working '*html'* system can be seen in the ***Example*** section of the website.

- Consultancy can extend to full implementation support to achieve accredited approval to a standard.
- Services are delivered by Professional Engineers with extensive experience of Group Management, 3rd party assessment and Training & Qualifying 3rd party assessors.
- Companies that have been supported, have achieved or maintained approval as required to the Quality Management Standards ISO9001 and/or the Automotive QMS standards based on it and improved their business performance.

- SYS aims to provide the best service possible and be seen as achieving this, as is shown in representative comments in the ***Customer Feedback*** section of the website.

Introducing the Process Approach. See the website.

## Contact

If there is anything that we can do to support you, then do let us know for example via the ***contact us*** page of the website; www.systemsys.co.uk.

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# 1. Management & Audit Training: Overviews

Based on standards, including the current versions of **ISO 9001** & the Automotive QMS Standard **IATF16949.**

## Awareness / detailed workshops; Management / Team

(In-house) Typically 0.5 day Awareness - 1-day detailed workshops
To give Teams at all levels of the organization the necessary information about the Process Approach & related standards such as ISO9001 & IATF16949, to support successful implementation & aligning the system with their own business / strategy. ***(Similar to 1st part of Auditor course.)***

## Internal Auditor Courses & Workshops.

**See Page 7**

ISO9001 & IATF16949 (Open & In-house)
Gives auditors the necessary skills to undertake effective internal system & process audits. **

## Assessor Courses & Workshops.

**See Pages 8 & 9**

ISO9001 & IATF16949 ASSESSOR (Options available, Open & In-house).
Gives new & existing Automotive Assessors the necessary skills to undertake effective First & Second Party Assessments, either on their own or eventually leading a team. Performance and written examinations & certification of achievements. **

** Most Audit courses allow you to undertake real audits;
for the in-house course these are against your audit schedule.

## Lead Assessor Coaching & Assessment

Post course Coaching / Assessment Follow-up activity to course, once sufficient audits completed successfully; sign-off as Assessor then eventually Lead Assessor.

**AUDITING Ref. article from IET Engineering Management. Request your copy**

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# 2. Core Tools Training: Overviews

**Objectives**: (Open or In-house) Typically 1 –2 day workshops. Gives organizations the necessary information to undertake effective audits of their Core Tools & / or implementing an effective system. These include:

## Quality Planning & Part Approval APQP/PPAP

New Product Introduction & Part Approval Frameworks. **See Page 10**
Understand the Project Management/sign-off process.

## Failure Mode & Effects Analysis (FMEA)*

Understand this key risk analysis tool that supports effective Product & Process Design within APQP. **See Page 10**
This can then lead to support in creation of Control Plans.

## Statistical Process Control (SPC)*

Using Statistics to understand & reduce the variation **in** your manufacturing processes & resultant products. **See Page 11**

## Measurement Systems Analysis (MSA)

Using statistics to understand your measurement system errors & reduce the variation present in them. **See Page 11**

## Disciplined Problem Solving (DPS)*

Understand & use this defined Corrective Action framework using a team to solve complex problems. **See Page 12**

*** Reference articles from *'quality world'* magazine.** **Request your copy**

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# 3. Consultancy Support: Outline

*Related Business System Consultancy Support*

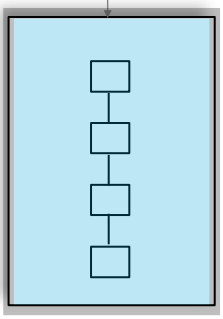
In-house Support as required, e.g. as per the following; *

## 1. System Map —>

In 1 day the key processes, can be determined & their sequence & interaction shown in a visual System Map. Some of these Processes can then be mapped, with their Key Performance Indicators ('KPI's) being identified.

## 2. Process Maps —>

In about 2 days, the remainder of the processes can be mapped, completing the Level 1 System Map & Level 2 Process Maps, and identifying KPIs.



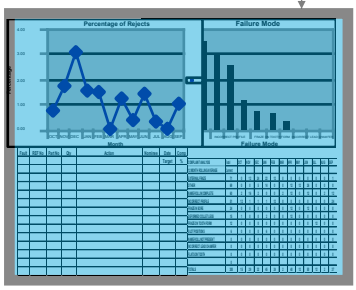
## 3. Documented Information —>

Provide support with your System, including Level 3 Instructions & Level 4 Forms: Supporting the publishing your system in a standard format that can be accessed by everyone, e.g. for intranet in '://html'.

## 4. Gap / Pre-Assessments / Guidance;

Identify any gaps in system against relevant standards. Assisting in implementing the system and achieving/maintaining Improvement & 3rd Party Approval Interim / on-going Parts of the system can be operated for you.

*See also the SYS i**Guide;** see website or ask for a copy.*




***Example KPI***

*** SYSTEM: Ref. article from IET Engineering Management. Request your copy .**

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# 4. Auditor Course Details

## *Course Outlines:* *ISO 9001 or IATF16949.*

***Ref. outline on Page 4***

- **3-day Course:**

**DAY 1 —'Classroom Training'**

- Course / Delegates' Objectives
- Background to Standards
- The Process approach & Risk based-thinking
- Integrated Frameworks, e.g. ISO14001
- Goal of Standard
- Support Documents, Guidance & Rules
- Scope & Application
- Management Systems / Documentation requirements
- Strategy / Policy Deployment
- Process Analysis / Key Performance Indicators
- Customer Satisfaction / Specific Requirements.
- Audit Planning& Qualification
- Start on the Standard

**DAY 2 —'Classroom Training'**

- The detail of the standard;
- Audit Process, Reports & Corrective Actions
- Undertaking Case Study Audits.

**DAY 3 —Audit 'Workshop'**

- Preparing to undertake an audit
- Undertaking Audit of Business Process
- Writing-up the audit
- Feeding back on the audit results

Certification against the above.

(For Automotive; this is a good foundation course, to start the development of auditors that meet the full requirements of the Automotive QMS standard.)

**AUDITING Ref. article from IET Engineering Management. Request your copy**

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Section 5

# 5. Assessor Course Details

*Course Outline: 'ISO9001 & IATF16949' courses*

***Overview: each 'Part' for all options*** **Note: ref. also outline on Page 4.**

- **Part 0:**. Pre-Evaluation. Questions on topics to be covered.
- **Part I:** Class room Training and Exercises in:
  Awareness, Automotive Process Approach, Risk Based Thinking,
  The Standards, Customer specific requirements, Case studies
  Core tools including, 'SPC', 'FMEA', 'MSA'; Audit process
- **Part II: Audit & Evaluation**
  On-site audits to schedule, Performance evaluation 'a'
  Examination, Write-up Audit, present findings, evaluation 'b'
- **Part III.** Marking exams & issuing Certificates/reports stating results, see 'Part IV'
- **Part IV.** Post course work as agreed, e.g. Audits, CSRs, Training needs identified,…

***Details***; **Option 1: 5-day assessor course**

(There are pre-requisites e.g. ISO9001:2015, some experience of Core Tools. or see Option 2.)

- **Mon.** Course / Delegates' Objectives
  Background to Standards, Goal of the Standard
  The Automotive Process approach & Risk-based thinking
  Integrated Frameworks & Effective Systems
  Management Systems / Documented Information
  Strategy / Policy Deployment, Process Analysis
  Key Performance Indicators, Customer Satisfaction
  Start on IATF 16949 standard in detail
- **Tue.** IATF 16949's standard, inc. Appendices, & Case Studies
- **Wed**. Customer Specific Requirements & Core Tools, including:
  Failure Modes & effects Analysis (FMEA)
  Statistical Process Control
  Measurement System Analysis (MSA)
  Audit Process; Planning, Auditing
  Auditor Qualification Criteria
- **Thu**. Undertake live Audits to schedule; ISO9001, IATF16949 & CSRs
  Performance Evaluation
- **Fri.** Written exam
  Audit Write-Up & feedback

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## 5. Assessor course *(cont.d)* **Option 2; Two; 3-day Modules;**

**MODULE I**

- **Day 1.** Course / Delegates' Objectives
  Background to Standards
  The Automotive Process approach & Risk-based thinking
  ISO9001 Standard in detail
- **Day 2.** Integrated Frameworks & Effective Systems
  Goal of Standard
  Support Documents, Guidance & Rules, Scope
  Management Systems / Documented Information
  Strategy / Policy Deployment, Process Analysis
  Key Performance Indicators,
  Customer Satisfaction
  IATF16949 Automotive standard start detail, clause by clause;
- **Day 3.** IATF16949 standard, inc. Appendices; & case study audits
  Customer Specific Requirements (CSRs)

**MODULE II**

- **Day 1**. Assessing Core Tools:
  Advanced Product Quality Planning (APQP)
  Production Part Approval Process (PPAP)
  Failure Modes & effects Analysis (FMEA)
  Statistical Process Control (SPC)
  Measurement System Analysis (MSA)
- **Day 2.** Audit Process; Planning, Auditing
  Auditor Qualification Criteria
  CSRs.
  Starting Audit preparation
- **Day 3**. Written exam
  Undertake live Audits to schedule; ISO9001, IATF16949 & CSRs
  Performance Evaluation
  Audit Write-Up & feedback

*This recommended full course is; two 3-day modules held between a week and a month apart. This helps delegates to focus on the standards in module I and then consider / apply them before the next topics of module II. If delegates have proven competence in certain areas then they can modify slightly their attendance. In-house courses can be tailored to suit the company.*

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Section 6

# 6. New Product Introduction & FMEA

## *Quality Planning / Part Approval.*

- **Introduction: 'Plan Do Check Act'** **Note: ref. outline on Page 5**
- **APQP Phase I: PLAN & DEFINE PROGRAMME**
  Inputs: eg. Business Plan & Outputs: eg. Design Goals. Inputs for section II
- **APQP Phase II: PRODUCT DESIGN & DEVELOPMENT**
  Outputs: eg. Design FMEA, Design Review, Drawings
  Outputs: (Team). New Equipment & Testing requirements
- **APQP Phase III: PROCESS DESIGN & DEVELOPMENT**
  Outputs: Process Flow, PFMEA, Measurement system analysis
- **APQP Phase IV: PRODUCT & PROCESS VALIDATION**
  Outputs: Validation, Control Plan, Process Capability, sign-off
  - **Part Approval**: PAP: PPAP AIAG PPAP Manual
    Reporting Requirements; Notification, Submission, Records
- **APQP Phase V: FEEDBACK, ASSESSMENT, CORRECTIVE ACTION**
  Outputs: Reduced Variation, Improved; Satisfaction, QCD & APQP Process. Management Support, 'throughout' Process.

## *Failure Mode & Effects Analysis (FMEA)* ***Risk Analysis***

- **Introduction:** Objectives, **Note: ref. outline on Page 5**
  Successful Implementation, 'Plan Do Check Act' Cycle
- **Inputs**; Measurement Tools; Data, e.g. 'QOS'
- **FMEA process**; Creation, When should you create an FMEA?
  Who should be involved? Define Scope & Customers
- **Preparation**; e.g. Block Diagram, Process Flow
- **FMEA Elements**; (Form, 'options')
  DFMEA (Product Design) & PFMEA (Process Design)
  Function, Failure Mode, Effects, Potential Causes
  Controls; Prevention/Detection
  Severity, Occurrence, Detection, scores Risk Assessment, 'RPN',
- **Actions** & Follow-up & Continuous Improvement. Link to Control Plan.
- **Workshop**; Creation of actual Documents:
  DFMEAs, PFMEAs & Control Plans.

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# 7. Statistical Techniques

## *Statistical Process Control (SPC)*

**Note: ref. outlines on Page 5**

- **Course / Delegates' Objectives**
  - **Goal of Standards, e.g. IATF16949**
- **Process Control**
- **Variation / Distribution**
  - **Location of a Process; 'Its Setting'**
  - **Spread of a Process; 'Its Variability'**
  - **Variables & Attributes; 'Types of data.'**
- **Control Charts; 'Understanding & developing.'**
- **Process Capability; Cpk & Performance. Ppk**
  - **'Calculating & reviewing.'**
- **Auditing SPC: Where is the company today?**
- **Workshop(s); 'Implementing SPC'.**

## *Measurement System Analysis (MSA)*

- **Course / Delegates' Objectives**
- **Measurement System Variability**
- **IATF16949's Requirements**
- **Measurement System Error**
  - **Location errors;**
  - **'Bias', 'Linearity', 'Stability'**
  - **Spread errors;**
  - **'Repeatability' & 'Reproducibility'**
- **Gauge R&R Studies; Variable & Attribute**
- **Analysis of Results – 'Data sheets',**
  - **'Graphical' Techniques**
- **Auditing MSA; Where is the company today?**
- **Workshop(s); 'Implementing MSA'.**

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# 8. Disciplined Problem Solving

- **D0 Determine the Problem.** **Note: ref. outline on Page 5**
  Establish what problem(s) need to be addressed. *Data*
- **D1 Use a Team Approach**
  Establish a small group of people with the process / product knowledge, allocated time, authority and skill in the required technical disciplines to solve the problem & implement corrective actions. They must have a designated champion. *PDCA, Team*
- **D2 Describe the problem**
  Specify the internal / external customer problem by identifying in quantifiable terms; who, what, when, where, why, how / many. *Process Flow, Cause & Effect, Pareto, FMEA*
- **D3 Containment Action**
  Define, implement & verify containment actions to isolate the problem from any internal / external customer until permanent corrective action is available. *Brainstorming, Bar Charts*
- **D4 Root Causes(s)**
  Identify all potential causes which could explain why the problem occurred. Isolate & verify the root cause(s) by testing each potential cause against problem description. *Brainstorming, C&E*
- **D5 Corrective Actions**
  Identify &verify alternative actions to eliminate Root Cause. Through pre-production test programmes, quantitatively confirm that the selected corrective actions will resolve the problem for the customer & will not cause undesirable side-effects. *Cause & Effect.*
- **D6 Permanent Corrective Action**
  Define & implement the best permanent corrective actions. Choose on-going controls to ensure the root cause is eliminated. Once in production, monitor long-term effects. *Pareto, FMEA*
- **D7 Prevent Recurrence**
  Modify the management systems, practices & procedures to prevent recurrence of this & similar problems. *BMS, FMEA*
- **D8 Congratulate the team**
  Recognise the collective efforts of the team. *Multi-Disciplinary Approach*

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