

HONG KONG MENTORSHIP SCHEME (HKMS) TOOLKIT



Derek Louis IEng FIMechE

INDEX

- 1 What is HKMS?
- 2 Why join HKMS?
- 3 How does HKMS work?
- 4 Progression on HKMS (flowchart/timescale)
- 5 Essentials for HKMS participants
- 6 Frequently asked questions (FAQs)
- 7 Using the Career Developer software
- 8 Support available (contacts)

APPENDICES

- 1 UK SPEC scoring
- 2 Example quarterly reports
- 3 Example annual assessments
- 4 Example mentor feedback

1 WHAT IS HKMS?

The Institution of Mechanical Engineers is proud to offer a special route to professional registration for developing engineers in Hong Kong.

The Hong Kong Registration Scheme follows the principles of the Institution's established supported registration scheme. It is designed for organisations where a number of early career stage engineers wish to develop professional registration through a mentoring relationship but where there are not necessarily a large number of experienced engineers who are registered with the Institution.

Joining Hong Kong Mentorship Scheme is the first step towards professional registration for young engineers in Hong Kong.

It is a managed, monitored means to commit to your future as a Chartered or Incorporated member of the Institution of Mechanical Engineers.

Louis Szeto CEng FIMechE
Technical and Engineering Manager, Shell Hong Kong Ltd

In Hong Kong, there are a great number of excellent, experienced engineers who are registered with the Institution at Chartered (CEng) and Incorporated (IEng) membership levels who are keen to give back their experience of the membership process.

HKMS provides disciplined and regular reporting framework that is aligned to the five Engineering Council [UK SPEC](#) competence areas. The framework is proven to be the most regulated, slickest route to registration as a professional engineer that the Institution can offer.



2 WHY JOIN HKMS?

DEVELOPING ENGINEERS

Young engineers benefit from the wisdom of those with the knowledge and competence required to be professionally-registered through the Institution's 160 heritage and stringent global standards.

What is a typical developing engineer like?

Developing engineers are usually junior in their careers. In many cases, are very recent graduates. These individuals need dedication to the reporting and development process as well as to their professional growth as an engineer. Their ultimate goal will be **Incorporated (IEng) or Chartered (CEng)** membership of the Institution.

MENTORS

Mentoring gives more senior engineers the opportunity to contribute to the continued high standards they strive to maintain across the profession.

As a registered professional engineer at either **Incorporated (IEng) or Chartered (CEng)** Engineer level anyone can mentor, no matter how many days, months or years it has been since they registered.

In addition: when working towards Fellow status of the Institution, it is essential that you can demonstrate that you are actively taking part in "the promotion of the engineering profession to young engineers and potential engineers" (quoted from the IMechE Fellowship requirements).

Mentoring is a great way to demonstrate this.

Some mentors will already be Fellows of the Institution, although this is not a requirement.

What is a typical mentor like?

Members who are experienced in their careers, they often like to give back to developing members of the profession as part of their continuous professional development.



3 HOW DOES IT WORK?

How do I join?

First, you'll need to upgrade your membership to [Associate level](#). You'll then have to find and register a mentor. Ask them to complete our online training module to learn how they can best support you.

Once you've found a mentor, you can register on the Supported Registration Scheme. We'll email you once your Career Developer account has been activated. You can use Career Developer to plan, report and review your progress toward professional registration.

After activation, you can start to plan your development for the first quarter. Along the way, you'll need to upload evidence to support your progress. You'll also have to upload your quarterly report.

When you have uploaded four quarterly reports, you can upload an annual assessment. Your mentor can access these reports online, where they'll provide valuable feedback and support throughout the process. These annual assessment reports provide an opportunity to benchmark your progress for the coming year.

Once you've achieved the right competence level, you can apply for professional registration.

Ready to apply as a Chartered Engineer or Incorporated Engineer? [Find out now](#).

Information

[Register online](#)

or

[Download the SRS registration form](#)

Supported Registration Scheme support and resources:

[SRS Toolkit](#)

[SRS Flowchart of process](#)

[SRS guide for Developing Engineers](#)

[User guide for mentors](#)

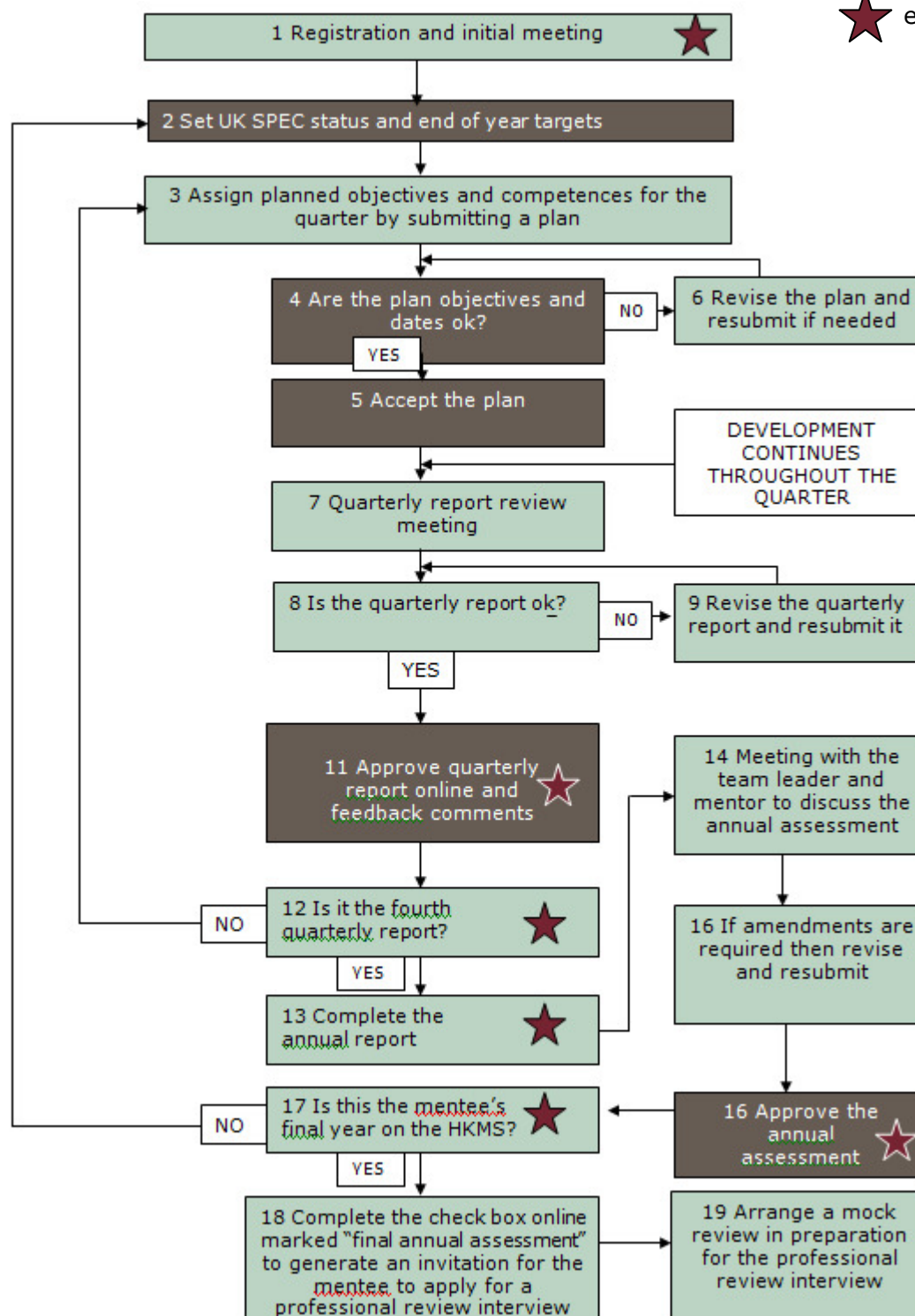
4 HOW TO PROGRESS

KEY

mentee actions

mentor actions

★ essential actions



5 THE ESSENTIALS

You must be formally registered on HKMS in order to participate. You can not take part without a mentor and it is also essential that you maintain [Associate membership of the Institution](#) throughout your time on HKMS.

Membership of the Institution reinforces your commitment to the profession and provides access to a wealth of information, technology

MENTORS

For existing Members of the Institution at Chartered (CEng), Incorporated (IEng) or Engineering Technician (EngTech) level, or for those engineers with significant levels of experience, you will need to [register as a mentor](#).

MENTEES

If you are a developing engineer and would like to be linked with a mentor who can guide you through your career development, please follow these three steps.

- 1) [Register as an Associate member of the Institution online](#)

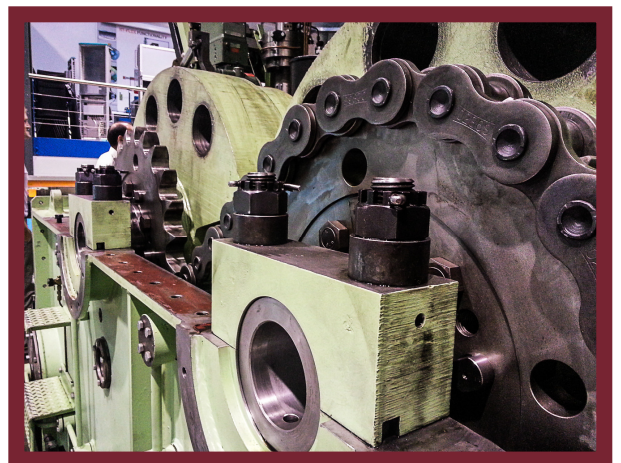
You will be allocated a membership number which you will need to use to fulfil step two.

- 2) Try to find a mentor by asking experienced engineers who you know who are members of the Institution whether they would consider this role.

If you are unable to locate your own mentor, you can email the Hong Kong administrative team imechehk@imeche.org using the subject heading "Mentor request" in order to request a mentor. Please include your membership number in the email.

You will be allocated a mentor, and can move to step three.

- 3) [Register as a developing engineer](#) on the Hong Kong Mentorship Scheme online.



6 FAQs

What is a typical developing engineer like?

Developing engineers are usually junior in their careers and in many cases, are very recent graduates.

What is a typical mentor like?

Members who are experienced in their careers, they often like to give back to developing members of the profession as part of their continuous professional development. When applying for Fellowship of the Institution, this is a useful element of the application.

How do mentors get allocated a developing engineer to mentor?

You can register for the scheme without a specific developing engineer having been allocated to you. By this method you will be entered into a pool of available mentors for the Hong Kong Mentorship Scheme. At a later stage you will be contacted by the Hong Kong office to inform you when a developing engineer is allocated to you.

How do developing engineers get allocated a mentor?

If you are a developing engineer you will need to name your mentor when you join the scheme. You will need to contact Jenny Chan at jenny.chan@imeche.org to request a mentor before you join the scheme using the registration form .

I have been working for a while now: can I record this experience?

Yes – as part of HKMS you can back-claim up to 18 months of experience as part of your HKMS records. You can record this under “additional information”.

Is joining HKMS a guarantee of membership?

No. Being part of HKMS is an excellent way to progress your development with the Institution of Mechanical Engineers and quickly record your experience in a thorough, regulated manner.

However, there is no guaranteed route or fast track to professional registration as an incorporated or chartered engineer. All applicants will need to submit an application, back this with experience, knowledge and understanding, demonstrated through the application and an interview.

How long does it take to complete HKMS?

There is no set time scale. In order to submit a membership application and be recommended for interview, you need to be able to demonstrate engineering competence across all sections of the application. Once you a

How do I know when I am ready for interview?

This is a matter you will discuss with your mentor. Typically, There is no need to include reports from HKMS in your membership application.

7 USING THE CAREER DEVELOPER SOFTWARE

INTRODUCTION

Career Developer is a web-based records management system tool for recording the Initial Professional Development (IPD) of developing engineers - mentees.

Career Developer has many optional features to enhance your reports and provide additional feedback. You can use all the functions for planning, recording and feedback, OR just use it as a simple tool to create your quarterly reports and annual assessments. Career Developer should not be used as a substitute for face-to-face meetings with your mentor.

Whilst embracing company objectives, developing engineers on the Supported Registration Scheme (SRS) adopt a disciplined reporting framework via Career Developer for their initial professional development. This ensures that competence is planned and recorded in a structured way. You should discuss and agree development plans with your mentor, then take action to implement the plan and acquire the professional competences required under the UK Standards of Professional Engineering Competence (UK-SPEC). You will report quarterly and annually and your mentor who will make an annual assessment of your competence against UK-SPEC.

You must be formally registered on SRS to participate. You cannot participate without a mentor and continuous membership of the IMechE must be maintained throughout your development. Professional institutional membership reinforces your commitment to the engineering profession and provides access to a wealth of new information, technology, innovation and a network of professionals. You are linked to your mentor on Career Developer and should ensure that you keep your personal details updated via Your Account. Please advise us if your mentor changes or you transfer to a new company.

LOGGING ON

Access to Career Developer is via your IMechE member account at www.imeche.org

- Log in via the fields in the top right hand corner of the page
- Enter your user name and password
- Click on log-in
- If you don't already have a username and password, click on Not a Member
- If you have difficulty logging in to Your Account please contact subscriptions@imeche.org
- If you have difficulty logging in to your Career Developer account please contact MPDS@imeche.org



Once you are successfully logged on, the link to Career Developer will appear in the left hand menu. Click on the Career Developer link and you will be taken directly to your own Developing Engineer profile.

MAIN PAGES

The **Noticeboard** is your landing page. Messages are posted here from the systems administrator. Please check for updates.

Click on **My Status** to check your professional status (IEng or CEng). This shows the competence framework and the chart you are working towards.

Plans (optional)

Evidence (optional)

Reports (compulsory)

The Plans and Evidence are optional tabs, but can add value to your report content. It is important to use these functions in the correct order. Ask your mentor to sign off in chronological order: 1. Plans, 2. Evidence, 3. Quarterly Report. This ensures the 'objectives' from your Plan map into your Quarterly report. This also ensures the 'evidence' you submitted auto-maps into your Quarterly Report and auto-maps again to the Annual Assessment. TABS	DEVELOPING ENGINEER'S actions	MENTOR actions
My Status	Confirm your name; your Mentor and the UK-SPEC Competence Framework (IEng or CEng)	Not applicable
Developing Engineers	Not applicable	Lists developing engineers under your guidance
Plans	Prepare / Edit / Submit Plan: Add the competences from the UK-SPEC tick list	Review the Plan: Add comments or notes (optional) Approve/Refer/Reject Plan

4) CREATE A DEVELOPMENT ACTION PLAN (optional)

Click on the **Plans** tab; Click on "Create Action Plan" - This starts up a plan wizard

- Use one plan per quarter – type in a title for the quarterly plan so you can easily identify it
- Type in the aims and the objectives you intend to cover in this quarter
- Select the competences you intend to cover
- You can either 'Save as Draft' to amend your plan at later date or 'Save and Submit' if you have finished

The plan is sent to your mentor for review together with an email.

Your mentor will review the Plan, check the competences you selected and may add comments. If your mentor is broadly happy with the plan he/she will approve it. If the mentor feels the competences are not appropriate, he/she will return the Plan for review. Simply resubmit the Plan with revised competences.

- You should focus on these objectives and competences during the quarter. If you do not achieve all the objectives, you simply readdress them in the next quarter. In some cases a Plan may be cancelled by the mentor (e.g. leaving to go to a new employer; new project etc.). Simply resubmit an updated Plan.

Click 'Save and Submit' or 'Save' as draft to amend at later date

This Evidence has now been auto-sent to your mentor for review with an auto no-reply email

5a) SUBMITTING EVIDENCE against your Plan (optional)

Your professional development will consist of a range of activities (e.g. project roles; quality management; budgeting and control; various courses, risk assessment etc) all of which will build your competence. You will address competences A, B, C, D and E of UK-SPEC several times, because you gain competence by doing things over and over again. You can record these competences as part of your portfolio of evidence.

The actual evidence of a particular project is bound to be confidential; therefore you should not upload company documentation. Your record is portable if you move to another place of work and evidence is usually commercially sensitive. You simply make brief notations and record the competences achieved over the period of a plan (e.g. team leader role; investigated possible cause of failures in xyz; recorded nonconformities; made recommendations on quality and risk; prepared findings in report). You then select UK-SPEC competences. These will auto-map to the quarterly report. You will expand on your comments on these activities in your quarterly report.

Go to the **Evidence** tab, click on Submit Evidence.

- Give your Evidence a Title (e.g. Causes of Mechanical Failure during acceptance trials)
- Select the category of evidence from the drop down menu (Project, Report, other)
- Upload your evidence
- Type in your brief comments in the evidence summary field (e.g. team leader role; investigated possible cause of failures in xyz; recorded non-conformities; made recommendations etc)
- Add the competences you achieved during this period
- Click 'Save and Submit' or 'Save' as draft to amend at later date
- This Evidence has now been auto-sent to your mentor for review with an auto no-reply email

5b) SCORING EVIDENCE

Your mentor will review the Evidence; assess scores 1-4 (optional); add comments (optional). The evidence score 1-4 auto-generates to the evidence checksheet OR, if not scoring evidence, 'tick' appears in the checksheet. Your mentor may return the Evidence to you to amend and resubmit.

When evidence has been approved, go to the **Evidence** tab. Click Checksheet on the left menu. You will notice these scores or 'ticks' are auto-mapped to your checksheet. This is a useful 'at a glance' gap analysis to show you where you have covered the competence framework in your development profile and where to concentrate further activity.

Note - Evidence scores are for the individual piece of work, not the overall competence. 0 indicates the competence you selected is not relevant to the work you have done at this stage.

Otherwise 'tick' appears on your check sheet to denote the competence was addressed.

6) QUARTERLY & ANNUAL REPORTS (compulsory)

Submitting Plans and Evidence is an on-going process. You must submit 4 quarterly reports each year. Reports are staggered to ensure you receive monitoring and feedback at each stage. Your quarterly reports (200-500 words) are written in the 'first person'; providing a synopsis of what you contributed and learnt each quarter, including what you learnt from errors and failures.

Competence is further 'Monitored' through the Annual Assessment report. Annual Assessments provide a summary of the period, and the Mentor's Report and Assessment of competence against UK-SPEC.

Quarterly Reports (compulsory)

At the end of each Quarter, you must prepare a short report of up to 500 words. You can make UK-SPEC more visible in your reports by mapping each paragraph to UK-SPEC (e.g. B1; D1; D2; E4) if you have not used the tick list.

Go to **Reports** tab; click on "Create Quarterly Report"

Type or 'cut and paste' your pre-prepared report from a word document; click Save'.

Click 'Save' and 'Submit' to submit it to your mentor or 'Save' as draft to amend at later date

Last updated January 2013

If you used the Plans and Evidence tab during this year and quarter, you will notice the system has automatically added the objectives and competences from the Plan and Evidence. These will only appear in the quarterly report if your mentor reviewed Plans and Evidence before you created the quarterly report. If you have not submitted evidence, the system has no information to generate into the quarterly report. You must therefore add UK-SPEC to each paragraph of your report (e.g. B2; C1; D2; D3; E4). You can use this method of reporting if you prefer not to use the Plans and Evidence tabs, it is entirely up to you.

Reports with an 'Edit' label attached can be changed and /or deleted by you, but once they are approved/rejected by the mentor they become a permanent record. The report you 'save' is automatically sent to your mentor for review.

Your mentor will review the Report and will provide feedback as part of their monitoring role. Your mentor may return the report to you to amend. Once your mentor has approved the report, it will show on your record as 'approved' together with the date.

Annual Assessment Reports (compulsory)

Your Annual Assessment falls due at the same time as your fourth quarter.

Click on "Annual Assessment" Click on 'New Annual Assessment'

The UK-SPEC competences covered in this period will appear if you have lodged evidence. You can now make further additions to these if you wish.

You should manually list your activities under A B C D and E.

Do not leave these areas blank or the mentor will not be able to assess you.

Add a few lines for your brief evaluation of this period of development.

Click 'Save and Submit' to submit it to your mentor or 'Save' as draft to amend at later date

Please note that if you click 'Save and Submit' you will not be able to amend the report unless your mentor returns it to you for revision.

The mentor will score your competence level for A B C D E and complete the 4 questions at the end of the report.

The mentor will sign off the report by ticking a box to that this is a final annual assessment.

7) COMPLETING NAP

The Final Annual Assessment Report will normally indicate that you have completed IPD and reached an appropriate level of competence within UK-SPEC criteria (CEng or IEng). However this depends on the workplace providing you with sufficient opportunity to develop competence and may

Last updated January 2013 Last updated January 2013

depend on whether you are actually working at CEng level. If you or your mentor feels you are not quite ready for registration, it is recommended that you continue recording your development. Complete further quarterly reports until you are ready for registration with the appropriate levels of professional competence.

Our goal is to empower you to take control of your professional development. The SRS provides you with a planned approach to registration as a professional engineer.

We wish you well in your ongoing professional development.

If you have any queries contact mpds@imeche.org

8 SUPPORT AVAILABLE

Contacts

As a mentor or a mentee, the resources available to assist you in your progress are available via the website www.imeche.org

Register as mentor on the scheme www.imeche.org/hkmentors

Register as a developing engineer or mentee www.imeche.org/hkmentees

Feel free to contact

IMechE Hong Kong Office
Institution of Mechanical Engineers
Room 1606, 16/F Dominion Centre
43-59 Queen's Road East
Wanchai
Hong Kong
T (852) 3153 4182
E imechehk@imeche.org

APPENDIX ONE

SCORING FOR UK-SPEC

(UK Standard for Professional Engineering Competence)

Consistent scoring and developing best practice across the engineering profession is the aim of the Institution of Mechanical Engineers (IMechE) and the Engineering Council.

These level descriptors provide guidance for mentors to score levels for total competence as a professional engineer. They are used for both Incorporated (IEng) and Chartered (CEng) engineers.

Many mentors will use 'overall competence as a professional engineer' as their guideline for scoring competence throughout Initial Professional Development (IPD). This would show a progression of scores over the period of development.

Scores 1-4 are used to assess whether a Developing Engineer has reached a level of competence appropriate for a professional registration interview. As a rule, it is unlikely that individuals in year 1 of development would be scoring at level 3.

The minimum scores for consideration for professional registration and corporate membership of the Institution are 3x3's and 2x2's in the 5 UK-SPEC competences.

Level 1 = AWARE

Performs the activity with significant supervision and guidance; performs basic routine and predictable tasks; little or no individual responsibility. *(This level of competence would not normally be sufficient for election to membership).*

Level 2 = FAMILIAR

Performs the activity in a range of contexts; supervision only required in more complex circumstances; some individual responsibility or autonomy. *(This indicates a minimum level of competence for election to membership, which should be supplemented, by higher levels of competence in the areas most relevant to the field of engineering in which the applicant is employed).*

Level 3 = SKILLED

Performs the activity in some complex and non-routine contexts; significant responsibility and autonomy; can oversee the work of others. *(This indicates a normal level of competence for election to membership).*

Level 4 = EXPERT

Performs the activity in a wide range of complex and non-routine contexts; substantial personal autonomy; can develop others in the activity. *(This indicates a high level of competence and suitability for election to membership and possibly fellowship).*

APPENDIX TWO

QUARTERLY REPORT GUIDANCE

If you use the simplest method of reporting, without using option tools such as Plans and Evidence, UK-SPEC must be clearly outlined as per this example of good practice.

- Go to Reports
- Create Quarterly Report
- Add your objectives
- Type your report details or cut and paste from a word document
- Use the 'first person' style of writing OR
- Use bulleted lists with an explanation of your involvement
- Outline your activities, roles, responsibilities and learning outcomes
- Reports should be no more than 200-500 words

EXAMPLE QUARTERLY REPORT

In the 'evidence' style – with relevant submissions

Note: This example shows how text is restricted in plans and evidence. Brief notations are suggested, rather than lengthy elaboration. The evidence submission acts as a reminder for items to include in the quarterly report synopsis.

Quarterly Report – Chartered Engineer
Year 1 Quarter 3
Notice: no plan approved for this quarter
Competences:
• CE-A.1-Maintain and extend a sound theoretical approach in enabling the introduction of new and advancing technology and other relevant developments
• CE-A.2-Engage in the creative and innovative development of engineering technology and continuous improvement systems
• CE-B.1-Identify potential projects & opportunities
• CE-B.2-Conduct appropriate research, and undertake design and development of engineering solutions
• CE-C.1-Plan for effective project implementation
• CE-C.2-Plan, budget, organise, direct and control tasks, people and resources
• CE-C.4-Bring about continuous improvement through quality management
• CE-D.1-Communicate in English with others at all levels
• CE-D.2-Present and discuss proposals
• CE-D.3-Demonstrate personal and social skills
• CE-E.1-Comply with relevant codes of conduct
• CE-E.2-Manage and apply safe systems of work

Evidence submitted during this quarter:
• <u>Electrical assessment form</u> Year 1 Quarter 3 19 Aug 2011 Location: GPAF Barry Electrical.tif
Notes:
graduate placement assessment form for my time on the electrical section
Review:
Reviewer: XXXXXXXXXXXXXXXX Date:26 Aug 2011 Status: Accepted
Reviewers Notes :
Associated Competences :
• <u>Manufacturing assessment form</u> Year 1 Quarter 3 19 Aug 2011 Location: GPAF Barry Manufacturing.tif
Notes:
Graduate placement assessment form for my time in Alstom Train manufacturing plant, Barcelona
Review:
Reviewer: XXXXXXXXXXXXXXXX Date:26 Aug 2011 Status: Accepted
Reviewers Notes :
Associated Competences :
• <u>MA set Turnkey</u> Year 1 Quarter 3 22 Aug 2011 Location: excel tables in personal folder
Notes:
I have been working on a project, which involves the engineering support for the conversion of Mark 3 Trailer Standard Open (TSO) coaches by adding a buffet facility. A more powerful motor-alternator set is needed to meet the increased current demand of the modified vehicle. This more powerful MA set is going to be taken from other redundant vehicles and will be fitted to the TSO, together with other electrical equipment. 11 major electrical locations were identified and it was my job to identify the components that were in each location. I did this by using illustrated parts manuals, electrical schematics, wiring diagrams and general arrangement drawings. After finding the components in each box/location it was necessary to find out how they were wired together.
Review:
Reviewer: XXXXXXXXXXXXXXXX Date:26 Aug 2011 Status: Accepted
Reviewers Notes :
Associated Competences :
CE-A.1-Maintain and extend a sound theoretical approach in enabling the introduction of new and advancing technology and other relevant developments (Level: 1)
- CE-B.2-Conduct appropriate research, and undertake design and development of engineering solutions (Level: 1)
- CE-C.1-Plan for effective project implementation (Level: 0)
• <u>Co-ordination of proposal for graduate placement</u> Year 1 Quarter 3 22 Aug 2011 Location: In personal folder
Notes:
I volunteered to arrange a meeting that would discuss a possible opportunity for sending graduates to gain some infrastructure experience working for Network Rail. I arranged a meeting and from the meeting it was decided a letter should be drafted. I spoke with a former graduate who has worked closely with Network rail and was able to find from him the types of work which Network Rail conduct in their premises in Derby. I drafted a letter trying to put forward a convincing argument. I was told it was too long for the person which I was addressing, and the request wouldn't be granted if not worded in the right fashion. I therefore revised it and the letter was then sent. A positive reply was later received.
Review:
Reviewer: XXXXXXXXXXXXXXXX Date:26 Aug 2011 Status: Accepted
Reviewers Notes :
Associated Competences :
- CE-B.1-Identify potential projects & opportunities (Level: 1)
- CE-D.1-Communicate in English with others at all levels (Level: 1)
- CE-D.2-Present and discuss proposals (Level: 1)
• <u>Manufacturing Placement</u> Year 1 Quarter 3 22 Aug 2011 Location: In personal folder
Notes:
I was based in the logistics department for my manufacturing placement. In the first week I was trained in a lean manufacturing tool, developed for xxxxxx. It was called MIFA, and stood for Material and Information flow analysis. It was a tool that used a simple graphical representation of the flows from suppliers through to the fabrication line, and allowed for easy identification of areas of 'waste' such as duplication of processes of excessive time being stored as WIP. After the first week of training which involved carrying out two guided analyses I was given the responsibility to carry out my own MIFA's. The first and largest was for four weeks and included a detailed study of the flows relating to the aluminium profiles for one of the Alstom projects.
Review:
Reviewer: XXXXXXXXXXXXXXXX Date:26 Aug 2011 Status: Accepted
Reviewers Notes :
Associated Competences :
CE-A.1-Maintain and extend a sound theoretical approach in enabling the introduction of new and advancing technology and other relevant developments (Level: 1)

CE-A.2-Engage in the creative and innovative development of engineering technology and continuous improvement systems (Level: 1)
- CE-B.2-Conduct appropriate research, and undertake design and development of engineering solutions (Level: 0)
- CE-C.1-Plan for effective project implementation (Level: 1)
- CE-C.4-Bring about continuous improvement through quality management (Level: 0)
- CE-D.2-Present and discuss proposals (Level: 1)
- CE-D.3-Demonstrate personal and social skills (Level: 1)
- CE-E.1-Comply with relevant codes of conduct (Level: 0)
- CE-E.2-Manage and apply safe systems of work (Level: 1)
CE-E.4-Carry out continuing professional development necessary to maintain and enhance competence in own area of practice (Level: 1)
• Preparation for placement in train manufacturer in Spain Year 1 Quarter 3 31 Aug 2011 Location: In personal folder
Notes:
I invested considerable effort in organising a manufacturing placement in Spain. I wanted to work for a manufacturer that built new trains and I also wanted to use a further opportunity to improve my Spanish. After gaining approval from xxxxxxxx by presenting a budget and reasons why I thought a placement abroad would be valuable, then got in contact with an Alstom manufacturing site in Barcelona. I needed to translate various documents to Spanish and send various emails to explain the objectives of a manufacturing placement. I also co-ordinated a site visit by the xxxxxxxxxxxxxx HR manager and myself, to discuss possible projects and carry out a safety visit.
Review:
Reviewer: XXXXXXXXXXXXXXXX Date:21 Sep 2011 Status: Accepted
Reviewers Notes :
Associated Competences :
- CE-B.1-Identify potential projects & opportunities (Level: 2)
- CE-C.1-Plan for effective project implementation (Level: 1)
- CE-C.2-Plan, budget, 9organize, direct and control tasks, people and resources (Level: 1)
- CE-D.2-Present and discuss proposals (Level: 1)
- CE-D.3-Demonstrate personal and social skills (Level: 2)
- CE-E.1-Comply with relevant codes of conduct (Level: 1)
- CE-E.2-Manage and apply safe systems of work (Level: 2)
CE-E.4-Carry out continuing professional development necessary to maintain and enhance competence in own area of practice (Level: 2)
Quarterly Report:
During my time on the electrical section I accompanied an engineer to a depot to learn about fitting and testing electrical equipment. I helped fit some OTMR equipment, which has a similar function to a black box on an aeroplane, and a data logger to the control system of an engine on a class 43 locomotive which had been experiencing engine shutdown. It was important to fit the diagnostic device in order to establish the reason for shutdown. Both experiences helped me appreciate the need to set up a safe systems of work. Principle project involvement is the conversion of Mark III Trailer Standard Open (TSO) coaches by adding a buffet facility. A more powerful motor-alternator set was needed to meet the increased current demand of the modified vehicle. My work involved identifying the electrical systems located on the underframe, which I modified to accommodate more powerful MA sets. I identified 11 major electric components and used the illustrated parts manuals, electrical schematics, wiring

diagrams, photos from the boxes and general arrangement drawings and found out how they were wired together.

I pursued and arranged meetings for a placement and identifying the scope of same. I prepared the correspondence that ultimately led to an agreement to accommodate me on mechanical graduate placement. I also arranged my manufacturing placement in Spain. I arranged a Safety visit at the Barcelona factory and I visited the site to discuss the work which I would undertake whilst there. I witnessed the various activities in the factory and ensure that they controlled all risks to safety. I also had to arrange accommodation and flights. I was based in the logistics department and introduced to a lean manufacturing tool, called MIFA, Material and Information Flow Analysis. I used this for simple graphical representation of the flows from suppliers through to the place where they are used, allowing me to identify areas of 'waste' such as duplication of processes or excessive time being stored as WIP. This study lasted 4 weeks and included a detailed study of the flows relating to the aluminium profiles for one of the xxxxx projects. The main problem was that they were storing a lot of stock, so I looked at the financial implications of this, which involved creating a spreadsheet that would correctly identify the value of the WIP on various dates, and how much it cost to store it. My recommendations included changing the planned orders to allow for a reduction in WIP. In my final week I carried out a process mapping technique of internal material flows for the process of soldering a headstock. At the same time I was responsible for aiding the training of two work experience students who would carry on the material flow studies after I finished. I was also able to speak with people in other departments such as engineering, production and quality to learn about their impact on train manufacturing activities. I also improved my Spanish as I had to gather information from many different people from around the factory, and present my findings to the Engineering Director.

Developing Engineers Evaluation of the period:

I have really enjoyed being able to work in a Spanish factory in order to gain an insight into manufacturing operations and also with the chance to improve my technical Spanish. I also liked working in the electrical section where I was able to be involved with the MA set turnkey project, and was able to be given the responsibility of correctly identifying all relevant electrical components.

Mentors Review :

Another confident period of development and xxxxxxxx is clearly moving forward and gaining further confidence and competence. Xxxxxxxx learnt a lot from his placement in Spain and it was a good opportunity to develop further language skills. Xxxxx has become a reliable member of the team.

Status: Accepted

Status Date: 21 Sep 2011

EXAMPLE QUARTERLY REPORT

In the 'first person' style of writing

Continuing in my role as an assistant requisitioning Engineer on the Air Cooled heat Exchanger (ACHE) package, the past quarter was spent on review of more supplier documentation.

The first and one of the most important documents I reviewed during this period were general arrangement drawings, GA. These act as a reference drawing for all engineering disciplines when looking for the size, layout and mounting position and details of the exchangers. During review of the GAs, my team (mechanical) and the piping group observed that the proposed ACHE dimensions had changed from those at the purchase order stage. I gained a greater appreciation for the space limitation and tolerance available in locating equipment on the piperack. (A1) (A2) (B3) (E1) (E3) (E4)

My next task was the review of mechanical calculations. This was necessary to confirm the stresses calculated by vendor and formulae used to calculate the stresses. The primary stresses concerned were membrane stresses within the plates, bending moments and tube stresses. I found this task most useful as it required careful referencing of the ASME design code to confirm the correct formulae is used for the type of heat exchanger construction. I also developed a simple calculation spreadsheet which I used to double check the supplier's stress values (attached as evidence). (A1) (A2) (B3) (E1) (E3) (E4)

Following the mechanical calculations I reviewed the inlet and outlet header box detail drawings. This exercise gave me a better understanding of how the equipment is assembled (welding) with emphasis on the type of welds used at various joints. Other documents e.g. weld procedures, not reviewed by the mechanical group but as assistant requisition engineer it was my responsibility to ensure that other departments involved, review and return the documents promptly to maintain schedule dates (A1) (A2) (B3) (C4) (D3) (E1) (E3) (E4)

During this quarter I also took the opportunity to become a STEM (Science Technology Engineering & Mathematics) ambassador.

Evaluation of the period The time has been challenging but very useful because all issues were directly related to mechanical engineering. Working with design codes when directly applicable to project deliverables has been very useful, helping me to become more familiar with the codes and standards, which has been a priority since the start of my MPDS program. Being the focal point (assisting) on a large package, I am working with various other engineering disciplines, disseminating large Volumes of documentation and working to a demanding schedule. Managing all these factors well will take more practice and is crucial for me as it is a transferrable skill and one that is crucial to my career progression. With regards to becoming a STEM ambassador; I am appreciative of the opportunity to be in a reputable profession and would like to help younger people as well as improve the profile of my company, profession and institution. I have been busy, leaving little time for training courses so I focused on work based learning.

EXAMPLE QUARTERLY REPORT

In the 'bullet point list' style – with explanations

In a move to work closer to other XXXXX companies I

- started a joint project with our German sister company
- developed new products which would form the basis of the next generation of friction materials for both companies
- arranged for disc brake testing to be carried out in country
- established what kind of testing would be required

This responsibility gave me more experience in working with people from outside the country but without the "stress" of working with a customer. In order to achieve common development targets I

- compared our German company's dynamometer's results with our own
- translated the documents into English
- summarised the translations, our schedules and made the comparisons
- developed new schedules to contain the best schedules of both
- determined whether the test routines for both companies are similar
- gained a good understanding of the technical German used in this industry for future projects

To test the integrity of CV disc pads they are subjected to extreme conditions on a vehicle endurance road route. On a vehicle this can be a time consuming exercise but I

- developed a new dynamometer simulation of a typical road route by analysing actual test results of a route and transferring the stop parameters to a dynamometer schedule
- realised, after the first attempt, that the timings were too tight for this dynamometer and a simpler temperature cycle was used. However, this schedule is available for use on other dynamometers

The project involving the replacement of an asbestos material continued and there was a great deal of customer pressure to commit more resources to this project. However

- I had to resist this since there were more important projects requiring manpower and the value of the business with this customer was not enough to raise its priority
- was able to use previous test results to convince the customer we could provide him with a solution and
- was able to promise some further confirmation test work after being allocated a slot in the busy dynamometer testing timing plan

After many delays the XXXXXX test vehicle was ready for collection and the contract to cover the vehicle loan was given to our legal representatives who insisted on many changes. I

- insisted that the contract was signed quickly and it was agreed that many changes were not necessary
- pointed out that the changes of legal jargon would make little sense in German
- arranged the logistics of the transfer, legal requirements of driving the vehicle, vehicle registration, Customs and Excise, tax, travel plans and insurance
- was able to negotiate the vehicle insurance premium down by reducing the value insured £0.5m to £0.25m

This experience was invaluable as I was able to help colleagues to carry out similar transfer exercises.

APPENDIX FOUR

EXAMPLE MENTOR COMMENTS

On a quarterly report

YR2 Q3 (Used with permission of owner)

Engineer's evaluation of the period

An interesting 3 months in which I have developed my knowledge in the field of alternative fuels and vehicle emissions and significantly grown my network of contacts. I have had the opportunity to lead and manage others while my work in particulates measurements allowed me to develop deep technical knowledge in a specialist area.

Mentor's review

Technical report writing skills have improved and there is distinct improvement in the presentation of this report. Good cross business exposure continues. Xyz is growing in confidence through his personal interaction within, and through supplier involvement. Xyz has joined the engineering analysis team and successfully managed the vibration damping trials. Objectives for the quarter have been met. There is continued technical and personal growth in a very promising Developing Engineer.

Status: accepted

Status date: 4th April 2011

Note

- Mentor comments assist the individual through feedback
- Mentor comments help plan the next period of development
- Mentor comments ensure the individual looks for opportunities to develop competence
- Mentor comments assist the professional review interview panel
- Mentor comments are evidence that monitoring has occurred

EXAMPLE MENTOR COMMENTS

On an annual assessment

- The Annual Assessment is generated by the Developing Engineer.
- Information for each competence area of the Annual Assessment is auto-mapped from the 'evidence' submitted that has been submitted against each quarter.
- If no evidence has been submitted then the Developing Engineer can add details in the competence boxes if they wish.
- When the report is 'Submitted' it is auto-sent to the mentor who will award the competence scores for A, B, C, D and E and then mark the report as 'Approved'.
- The mentor will also complete the following section of the Report:

1. Main responsibilities in the post/s held during this period
A list of the X sections that x has worked in together with his main roles : Business Consulting Finding data and helping write a presentation given by the Strategic Projects Director at a conference of clients held in Sweden. Researching potential commercial opportunities for the Business Consulting section across Europe. Mechanical Learning about how to use the Finite Element tool Ansys to solve structural problems of a control rod and helping with a survey assessing the condition of a fleet of vehicles. Electrical Two visits to depots to fit electrical equipment (including night work) and involvement with the electrical implications/changes within a turnkey project of the conversion of a mark 3 coach. Audits and Safety Creating and developing resources to support x's work as a Notified Body. Two product and process audits and a corrosion inspection of a sample of a fleet of vehicles.
He has also done a practical engineering course and a 6-week manufacturing placement with x in Spain (where he conducted studies of Work In Progress).
2. Assessment of performance; detail notable successes or failures
Confident start to career within Railway Consultancy. Design build project at Rugby successfully completed. Self motivation enabled an overseas placement to be realised that allowed x to improve his technical Spanish.
3. Details of any technical, commercial or management courses which the graduate has attended
Personal Track Safety Course; Traction and Rolling Stock Course; Depot Awareness and Various Technology Briefings; Presentation Skills Course
4. What role/s will be undertaken by the Developing Engineer in the next twelve months and how will these help him/her to develop the competences required for this chart?
x will be finishing off the graduate training scheme with remaining placements in Sales and Marketing, Maintenance, Rolling Stock, Railway Systems and Infrastructure, and a regional office placement in London. He will also carry out two depot placements and is investigating a secondment to Melbourne. x to undertake more work with a technical content to build up his knowledge