UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 1 Examination in Engineering: October 2022

Module Number: IS1301　　　　**Module Name: Communication for Engineers**

[Three hours]

[Answer **all 05 questions** in the answer booklet provided. Each question carries **12 marks**]

Q1 a)　　Complete the sentences with the correct form of the verb in the brackets.
   i. Hemal can't talk now. He ……….. (fix) a pipe right now.
   ii. I ……….. (play) tennis every weekend when I was schooling.
   iii. We were doing a presentation while some others …… (study) for the exam.
   iv. She ……… (drive) around the city for three hours before she finally found the right office.
   v. They …………. (move) their furniture out of the house by the time you arrive tomorrow.
   vi When you practice critical thinking, you …………. ……… (not, accept) information at face value.
   vii. Some of our friends who …………. playing in the ground in the evening did not return to the hostel.
   viii. All the students …………. (ask) to assemble in the auditorium at 10.00a.m.
   ix. The dogs …………. (not, get) into the house if you had shut the door.
   x. I hope they ………..(repair) this rode by the time we come back next year.
   xi. At the front of a camera is a glass lens which ……….(project) or throws the image onto a film which is stretched out of the other end of the camera.
   xii. Based on the fundamental principles of modeling, physics, mathematics and computer science, simulation ………..(give) engineers the power to see how their designs will behave in millions of real-world scenarios.

(6 Marks)

b)　　Transform the following sentences into passive voice.
   i. Students can use the multimedia projector to do the presentation.
   ii. Stephanie Kwolek invented the Kevlar in 1966.
   iii The Head of the Department will announce the commencement of the next semester.
   iv. The faculty of Engineering is holding the annual symposium in the faculty auditorium these days.

v. A contractor is going to build a new housing complex near the university.

vi. Some Sri Lankan Engineers have introduced a profitable and easy way to import fuel from a European country.

vii. The General Manager had hired a new Engineer before Hasith left the company. Before the construction we had already done experiments with the new material.

viii.

ix. Our Engineering department published a new journal including all the research articles.

x. The university management has made several attempts in the past two years to stop ragging.

xi. The writers can use narrative paragraphs in any type of writing.

xii. You can find full details of the courses, and comprehensive documentation for the two MScs in the Programme Handbook.

(6 Marks)

Q2 **Read the passage and answer the questions given below.**

Time management for Engineers

Time management may not sound glamorous, but it's one of those things that underpins everything you do in your professional life (and indeed beyond). As a field service engineer, your days are filled with a multitude of different tasks, and developing effective time management strategies to help you complete them in an efficient manner, all while delivering the high level of service your customers and employers expect, is critical. In this article, we're going to look at ten useful time and task management strategies to help you get through the working day in the most efficient way possible.

Whatever their industry, the world's top-performing professionals have one thing in common: the right mindset. Getting into the right frame of mind is crucial for tackling a complex project, and that's especially true for field service engineers, whose days are filled with solving problems. One way to help yourself start thinking clearly and solving problems more quickly is to practice mindfulness and meditation, which have emerged as powerful tools in time management. It sounds counterintuitive, but taking time out at the start of the day can actually help save you time and allow you to manage your time better. In fact, mindfulness has even been shown to promote divergent thinking in engineers.

Just as an engineer visualises how to solve a problem, they should also be able to visualise the outcome of their day before starting their tasks. The thinking behind this is that by focusing on the result you want to achieve rather than merely the actions, you'll work more efficiently to reach that goal. One way of achieving effective daily visualisation is to set clear goals for your day, as we'll discuss in our next point.

Whether you're working on one big project or juggling lots of different tasks, it can be difficult to know where to begin each day. That's why, as any successful engineer knows, starting the day with clear goals is essential both for completing the day's tasks and for longer-term success. Breaking down larger projects into smaller, more manageable goals

will help you manage your time more effectively, as well as boosting your motivation. After all, there's nothing more satisfying and motivating than ticking off items on your To Do list.

Another way to improve your time management is to keep admin to a minimum, and ideally to keep it paperless by using field service management software like Call2Field. This speed up the time it takes to record the work you've carried out, and makes it easier to work with other people, who can then access your job reports and other information over the cloud from wherever they are.

Not only that, but it's quicker to type a job report digitally than it is to write it by hand - and there won't be any problems with reading your handwriting or that of your colleagues. Even better, when everything you do is online and automatically sent to customers or uploaded to a central database - from quoting for jobs to obtaining customer sign-off - you'll know that you're taking care of the admin side of your job in the most efficient, time-effective way possible.

How can you improve your time management if you're not clear about how you're actually spending your time each day? Tracking your time is a useful exercise for helping you gain clarity on how much time different tasks take up, so you can spot areas where there might be room for improvement (taking too much time on admin, for example, as mentioned in our previous point).

Paired with job scheduling software, this can be a great strategy to make you a more effective engineer. Call2Field job scheduling software for engineers allows you to schedule incoming calls and prioritise important tasks, enabling you to structure your time effectively, maximise productivity and deliver the best possible service to the customers you work for.

When it comes to time management, it's useful to be aware of the idea of 'free float', a term that refers to the amount of time you can delay a task without it delaying other tasks. In practice, that might mean allowing a bit of extra time in your schedule for unforeseen circumstances, such as bad weather or equipment breakdown. If everything goes smoothly, this should allow you to complete projects ahead of schedule as well as giving you leeway just in case something goes wrong.

As an engineer, learning the art of effective delegation is an important strategy in time management. While it can be difficult to let go of control over some aspects of your day-to-day work, there are lots of benefits of delegation in terms of managing your own time effectively and using your skills on the tasks where they're most needed.

With that in mind, you should be able to trust less experienced colleagues to perform routine tasks, helping you to manage your own workload as well as speeding up the project completion. One way of thinking about this is to keep in mind the 80/20 rule, also known as the Pareto Principle, which says that 80% of our results come from 20% of our

actions. In other words, you concentrate on the top 20% while delegating the less important 80% to less experienced colleagues.
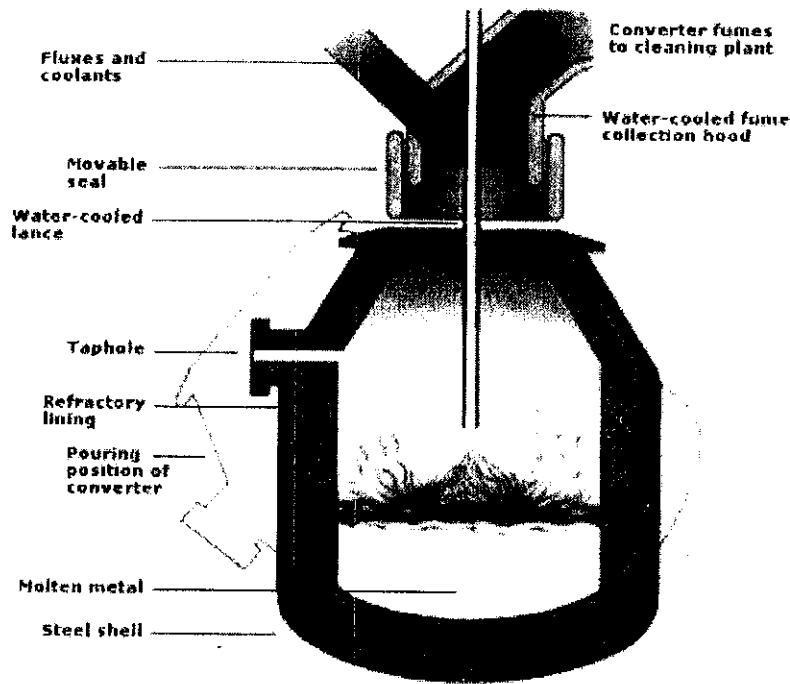
As with all aspects of working life, effective communications management is key to managing your time effectively and keeping projects on track.

https://www.redzebrasoftware.com/news/10-time-management-strategies-for-engineers/

a. Why time management is important for Engineers? (1 mark)

b. What is the main point discussed in paragraph 2? (1 mark)

c. Writer talks about two powerful tools in time management in paragraph two. What are they? (1 mark)

d. How can an Engineer achieve effective daily visualisation? (1 mark)

e. What is Call2Field? Why it is important (1 mark)

f. Name two benefits of Call2Field job scheduling software. (1 mark)

g. Define the term 'free float'. (1mark)

h. Discuss the benefits of delegation as shown in 'Pareto Principle'. (1 mark)

i. Write a grammatically correct meaningful sentence for each word given below.
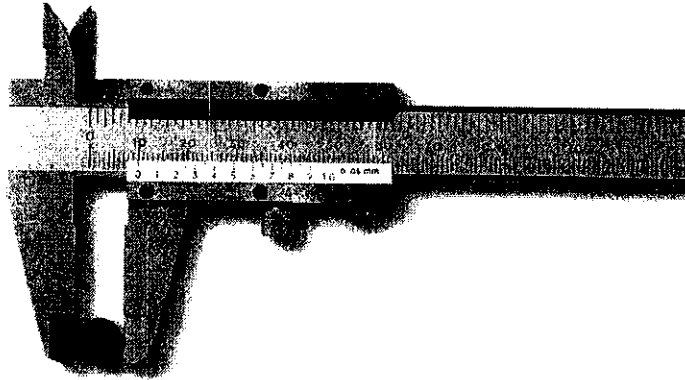
   i. employers

   ii. delegation (4 marks)

[Total- 12 Marks]

Q3 a) Write a paragraph describing the process of making iron by referring to the diagram.

Fluxes and coolants

Converter fumes to cleaning plant

Water-cooled fume collection hood

Movable seal

Water-cooled lance

Taphole

Refractory lining

Pouring position of converter

Molten metal

Steel shell

LD-converter

(6 Marks)

b) Write a paragraph describing the measuring tool shown below. Use about 100 words.

(6 Marks)

Q4 Write short paragraphs for the topics given below. 100 words for each.
a) My dream job (4 Marks)
b) Positive leadership traits (4 Marks)
c) Importance of stress management as students (4 Marks)

Q5   Select one of the topics given below and write an essay. Your essay will be marked for the organization, content and language. (250 words)

    i.   How will lifelong learning help you succeed in life and career?

    ii.   Critical Thinkers are less likely to just go along with the crowd. Justify.

    iii.   Is online education as good as in-person classes?

    iv   Contribution of Engineers for the sustainable development of Sri Lanka.

    v.   Solutions to economic and financial crises faced today by Sri Lanka.

[12 Marks]