NATIONAL OPEN UNIVERSITY OF NIGERIA

# HCM 234


## Facility Maintenance
## Course Guide

# HCM 234 Facility Maintenance Module 1

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Published in 2021, by the National Open University of Nigeria



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## Introduction

Maintenance is the effort, in connection with different technical and administrative action to keep a physical asset, or restore it to a condition where it can perform a required function. Maintenance is also seen as restoring to or retain to a state in which an item can perform an initially specified function and all actions aimed towards this are maintenance activities.

Maintenance is an investment because resources are spent today to do maintenance in order to reduce cost or get higher benefits in the future as compared to if the resources are not spent. However despite this opinion maintenance is generally separated from true investment because it is a matter of restoring an old function or keeping up an old function. A decision maker for maintenance should think in terms of how to keep informed, how to take decision, and consideration of the fact that the future is uncertain, therefore no need for future planning.

The concept of maintenance favours minor changes and where it is possible to know in advance the rationale to do. It is also suitable for an industry characterised with more rapid changes on its specific building structure. Hotels need minor renovations because this industry is influenced by technological and societal changes.

Generally, hotels are complex and costly when it comes to maintenance with various uses of spaces that have different schedules and uses for guest rooms, restaurants, health club, swimming pool, and retail store. Each has a functional engineering system required for its maintenance. Maintenance therefore has to be done throughout the year, requiring competent staff to undertake building services, operation and maintenance, supplemented by outsourced contractors. In the hospitality industry, the maintenance of the engineering systems is important despite its complex processes as its effectiveness will directly affect the quality of hotel services, which have direct and significant effect on guests' impression of the hotel. As such, the development of a suitable maintenance strategy is gaining publicity, greater reliance is placed on it to keep high system availability and achieve acceptable environmental conditions for the occupants.

Of the three core consumer products in the hotel: accommodation and food and beverage, accommodation standard significantly affect the customer satisfaction and inclination to return.

Maintenance management also plays a main role in improving energy efficiency and keeping the total costs optimal. The costs of operating and maintaining the engineering systems, in particular the in-house manpower, out-source contractors, energy consumption and equipment deterioration, must be properly monitored and controlled. Among the commonly adopted strategy in the hotel industry is outsourcing, which managers use to squeeze operating costs in a tough business environment. The purpose of such a strategy is to improve productivity, increase revenues; lower operating costs, and reduce risk. It allows hotel to focus efforts on its core competency and strengthen its ability to adapt in the ever-changing business environment.

The trend in Nigeria today is that facilities maintenance and sustenance must be geared up in all the sectors of the economy, hotels inclusive. Thus, in order for business to be conducted in any hotel, it is essential for constructed assets to be appropriately managed if the business is to maintain the capital invested, enhance its value and sustain reasonable return.

Course Guide
The Course Guide tells you briefly what the course is all about, what course materials you will be using and how you can work through the study materials. It suggests some general guidelines for the amount of time you are likely to spend on each unit of the course in order to complete it successfully.

It also gives you some guidelines on your Tutor-Marked Assignments, which will be made available to you at the Study Centre. There are regular tutorial classes that are linked to the course. You are advised to attend these sessions.

## What You Will Learn In This Course

During this course, you will learn about:

- Hotel facility maintenance management
- Maintenance planning
- Hotel maintenance staff
- Hotel buildings
- Water supply systems
- Fuels used in hotels
- Fire and fire fighting
- Heating, ventilation and air conditioning
- Maintenance procedure
- Energy conservation
- Pollution
- Common building defects
- Safety and security

## Course Aim

The aim of the course can be summarised as follows:

- To give you an understanding of the meaning of facility maintenance management, how the theories and concepts can be applied to facility maintenance management.
- It is also expected to help you develop skills and adequate knowledge you are expected to exhibit as a maintenance personnel.

## Course Objectives

To achieve the aims set out, the course sets overall objectives. Each unit also has specific objectives. The unit objectives are always specified at the beginning of a unit. You should read them before you start working through the unit. You may want to refer to them during your study of the unit to check your progress.

Below are the overall objectives of the course. By meeting these objectives, you should have achieved the aims of the course as a whole. On successful completion of the course, you should be able to explain:

- Hotel maintenance planning, maintenance procedure and facility maintenance management
- Hotel buildings and maintenance staff
- Water supply systems and fuels used in hotels
- Fire and fire fighting
- Heating, energy conservation as well as ventilation and air conditioning
- Pollution
- Common building defects
- Safety and security.

## Working through This Course

For a successful completion of this course, you are required to go through the study units, reference books, and other resources that are related to each unit. The Tutor-Marked Assignment (TMA) should be done immediately and submitted to the Course Facilitator.

The medium and time for the submission of the TMA will be specified later. This is a two (2) credit unit course, and so you are expected to spend a minimum of two (2) hours on it weekly. It is expected that you complete the entire course outline between 15 – 17 weeks.

Below you will find listed all the components of the course. What you have to do and how you should allocate your time to each unit in order to complete the course successfully

## Course Materials

Major components of the course are:

- Course Guide
- Study Units
- Textbooks
- Assignments
- Presentation Schedule

## Study Units

The study topics to be discussed have been grouped in modules and units as shown below:

### Module 1

Unit 1 Facility Maintenance Management
Unit 2 Maintenance Planning

Course Guide
Unit 3 Hotel Maintenance Staff
Unit 4 Computerised Maintenance Management Systems

## Module 2

Unit 1 Hotel Buildings
Unit 2 Water Supply Systems
Unit 3 Fuels Used in Hotels
Unit 4 Fire and Fire Fighting
Unit 5 Heating, Ventilation and Air Conditioning

## Module 3

Unit 1 Maintenance Procedure
Unit 2 Energy Conservation
Unit 3 Pollution
Unit 4 Common Building Defects
Unit 5 Safety and Security

The units shall be treated in sequential order

## Presentation Schedule

Specific dates for particular activities, such as submission of assignments, tutorial schedules and examination dates shall be made available to you at a later date. This will enable you plan your activities in the same line. The method of submitting your assignments and receiving other course materials shall be agreed upon on a later date.

When dates are given, remember you are required to submit all your assignments by the due date. You should endeavour not to lag behind in your work.

## Course Evaluation

unit of this course has a tutor-marked assignment section which you are expected to attempt at the end of the unit. You are required to keep an assignment file. Out of all the assignments you will do, each shall be marked and at the end, the best three (3) shall be selected to make up 30%.

## Final Examination

The final examination for this course has a total value of 70% of the total course grade. It will cover all aspects of this course. You should use the time between finishing the last unit and sitting for the examination to revise the entire course.

## Course Marking Scheme

At the end of the course, the evaluation shall be as follow:

| **Assessment** | **Marks** |
|---|---|
| Assignments | 30% |
| Examination | 70% |
| **Total** | **100%** |

## Course Overview

This table brings the units and the number of weeks you should spend to complete them. The assignments that follow them are also taken into consideration.

| **Unit** | **Title of work** | **Week's activity** | **Assessment (end of unit)** |
|---|---|---|---|
| | **Module 1** | | |
| 1 | Facility Maintenance Management | 1 | Assignment 1 |
| 2 | Maintenance Planning | 1 | Assignment 2 |
| 3 | Hotel Maintenance Staff | 1 | Assignment 3 |
| 4 | Computerised Maintenance Management Systems | 1 | Assignment 4 |
| | **Module 2** | | |
| 1 | Hotel Buildings | 1 | Assignment 5 |
| 2 | Water Supply Systems | 1 | Assignment 6 |
| 3 | Fuels used in Hotels | 1 | Assignment 7 |
| 4 | Fire and Fire Fighting | 1 | Assignment 8 |
| 5 | Heating, Ventilation and Air conditioning | 1 | Assignment 9 |
| | **Module 3** | | |
| 1 | Maintenance Procedure | 1 | Assignment 10 |

| | | | |
|---|---|---|---|
| 2 | Energy Conservation | 1 | Assignment 11 |
| 3 | Pollution | 1 | Assignment 12 |
| 4 | Common Building Defects | 1 | Assignment 13 |
| 5 | Safety and Security | 1 | Assignment 14 |
| | **Revision** | | |
| | **Total** | **15** | |

## How to Get the Most from This Course

In distance learning, the study units replace the conventional lecturer. This is one of the great advantages of distance learning. You can read and work through the specially designed study materials at your own pace, and at a time and place that suits you best. Think of it this way as you read through the lecture, and that a lecturer might set some readings for you to do. The study unit will tell you when to read your other materials. Just as a lecturer might give you an in-class exercise, your study units also provide exercises for you to do at appropriate points.

Each study unit follows a common format. The first item is an introduction to the subject matter of the unit. Next is a set of learning objectives. These objectives let you know what you should be able to do by the time you have completed the unit. You should use these objectives to guide your study. When you have finished the unit, you must go back and check whether you have achieved the objectives. If you make a habit of doing this, you will significantly improve your chances of passing the course.

The main body of the unit guides you through the required reading from other sources. This will usually be either from reading section or some other sources.

The following is a practical strategy for working through the course. If you run into any trouble, telephone your tutor. When you need help, do not hesitate to call and ask your tutor to provide it.

In summary,

1. Read this Course Guide
2. Organise a study schedule. Refer to the course overview for more details. Note the time you are expected to spend on each unit and how the assignments relate to the unit. Important information e.g details of your tutorials, date of the first day of the semester, are all available. You need to gather together all information in one place, such as your dairy or wall calendar. Whatever method you choose to use, write your dates for working on each unit.
3. Once you have created your own study schedule, do everything you can to stick to it. The major reason that students fail is that they fall behind with their coursework. If you get into difficulties with your schedule, please let your facilitator know before it is too late for help.

4. Turn to unit 1 and read the introduction and objectives for the unit.
5. Assemble the study materials. You will always need both the study unit you are working on and one of your set textbooks on your desk at the same time.
6. Work through the unit. The content of the unit itself has been arranged to provide a sequence for you to follow. As you work through the unit, you will be instructed to read sections from your set books or other articles. Use the unit to guide your reading.
7. Well before the relevant due dates (about 4 weeks before the dates) Access the assignment file to download your next required assignment. Keep in mind that you will learn a lot by doing the assignments carefully.
8. Review the objectives for each study unit and confirm that you have achieved them. If you feel unsure about any of the objectives, review the study material or consult your tutor.
9. When you are confident that you have achieved a unit's objectives, you can then start on the next unit. Proceed unit by unit through the course and try to pace your study so that you keep yourself on schedule.
10. When you have submitted an assignment to your tutor for marking, do not wait for its return before starting on the next unit. Keep to your schedule. When the assignment is returned, pay particular attention to your facilitator's comments. Consult your tutor as soon as possible if you have any questions or problems.
11. After completing the last unit, review the course and prepare yourself for the final examination. Check that you have achieved the unit objectives and the course objectives.

## Self-Assessment Exercise

There are 8 hours of tutorials provided for this course. You will be notified of the dates, time and location of these tutorials, together with the names and telephone numbers of your tutors, as soon as you are allocated a tutorial group.

Your tutor will mark and comment on your assignments. Keep a close watch on your progress and on any difficulties you might encounter as they would provide assistance to you during the course. You must mail your tutor-marked assignments to your tutor well before the due date (at least 2 working days are required). They will be marked by your tutor and returned to you as soon as possible. Do not hesitate to contact your tutor by telephone, e-mail, or discussion board if you need help.

Contact your tutor if:

- You do not understand any part of the study units or the assigned readings.
- You have a question or problem with your tutor's comment on your assignment or with the grading of an assignment.

You should try your very best to attend tutorials. This is the only chance to have face-to-face contact with your tutor, and to ask questions which are answered instantly. You can raise any problem encountered in the course of your study. To gain the maximum benefit from course tutorials, prepare question list before attending them. You will learn a lot from participating in discussions actively.

## Summary

As earlier stated, the course HCM 234: Facility Maintenance Management is designed to introduce you to the concepts, skills and knowledge required of you as a maintenance staff.

## Conclusion

By the time you go through all the modules and units, you will be well-grounded in Facility Maintenance and Management. We hope you enjoy your acquaintance with the National Open University of Nigeria (NOUN). We wish you every success in the future.

## Textbooks/References

Allen, G. Burton Jr., Robert Pitt (2001). *Stormwater Effects Handbook: A Toolbox for Watershed Managers, Scientists, and Engineers*. New York: CRC/Lewis Publishers. ISBN 0-87371-924-7.

Brattebo, B. O. & Booth, D. B. (2003). "Long-Term Stormwater Quantity and Quality Performance of Permeable Pavement Systems." *Water Research.* 37: 4369-4376.

EPA. (2009). "Storm-water Discharges from Municipal Separate Storm Sewer Systems (MS4s)."

Goyal, N.C. & Arora, K.C. (1996). *A Textbook of Hotel Maintenance.* Standard Publishers, Delhi.

Bob, Mann & Robert, S. Mann. (2006). *Defect-Free Buildings: A Construction Manual for Quality Control and Conflict*. New York: McGraw-Hill.

Stuart, H. Bartholomew. (1998). *Construction Contracting*. New Jersey; Prentice Hall.

Mobley, Keith R; Higgins, Lindley R. & Wikoff, Darrin J. (2008). *Maintenance Engineering Handbook* (7th ed.). McGraw-Hill Professional.

Kelly, Anthony (2006). *Managing Maintenance Resources,* Butterworth-Heinemann.

Garg, A., & Deshmukh, S.G. (2006). "Maintenance Management: Literature Review and Directions". *Journal of Quality in Maintenance Engineering*, 12 (3) 205 – 238.

Hassanien, A., &Losekoot, E. (2002). "The Application of Facilities Management Expertise to the Hotel Renovation Process". *Facilities, 20 (7/8),* 230-238.

Goyal, N.C. & Arora, K.C. (1996). *A Textbook of Hotel Maintenance*. Delhi: Standard Publishers.

Chan, K.T.; Lee, R.H.K.& Burnett, J. (2001). "Maintenance Performance: A Case Study of Hospitality Engineering Systems". *Facilities,* 19 (13/14) 494 – 504.

Chan, K. T., Lee, R.H.K., & Burnett , J.(2003). "Maintenance Practices and Energy Performance of Hotel Buildings". *Strategic Planning for Energy and the Environment*, *23(1)* 6-28.

Garg, A., & Deshmukh, S. G. (2006). "Maintenance Management: Literature Review and Directions". *Journal of Quality in Maintenance Engineering*, 12 (3) 205 – 238

Hassanien, A., & Losekoot, E. (2002). "The Application of Facilities Management Expertise to the Hotel Renovation Process". *Facilities, 20 (7/8),* 230-238.

Cowan, H.J. (1989). "The Causes of Structural Failure". *Architectural Science Review, 32* (3): 65–66.