

COURSE OUTLINE ACADEMIC YEAR 2017/2018

Course Title: Developing and Implementing Asset Lifecycle Delivery Activities			
Course Code: AMPC 204	Schedule Type Code: online	Instruction Hours: 30 hours	Credits: None
AMPC 201			Prerequisite(s):
Program: Asset Management Certificate Program			
<p>Approved By: Pat Tait</p> <p>Signature:  Date: July 2017</p>			

Course Description

This course provides students with an understanding of the different lifecycle delivery activities that an asset has to go through and provide them with hands-on experience in developing and implementing those activities. Students will be introduced with the asset lifecycle activities from asset acquisition through asset operations & maintenance to asset disposal and understand the importance of their effectiveness. They will learn the strategies/tactics and best practices for the different asset lifecycle delivery activities from lust to dust. They will learn how to develop and implement those asset lifecycle strategies/tactics to optimally and sustainably manage assets.

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Recognize the importance of asset lifecycle delivery activities on asset life and in achieving compliance with industry legislations.
2. Identify the different asset lifecycle delivery activities such as asset creation/acquisition, asset installation/commissioning, asset operations & maintenance and asset disposal.
3. Recognize the importance of operating or service level of assets and performance standards in current operating context.
4. Describe the concepts of asset function, functional failure, and failure mode and effect analysis.
5. Determine how to evaluate the consequences of failures how to select appropriate proactive maintenance tasks.
6. Determine how to select appropriate default maintenance tasks for different failure modes where no proactive maintenance tasks are possible.
7. Recognize the importance of asset operations practices and failure finding activities.
8. Determine how to develop implementation plan to prioritize, plan and schedule maintenance delivery activities.
9. Use reliability engineering and root cause analysis to determine the causes of failure.
10. Determine how to apply cost benefit analysis and lifecycle costing analysis to support asset rationalization and asset disposal decision-making.

Learning Resources

Reliability-Centered Maintenance by John Moubray, Second Edition
Publisher: Industrial Press Inc. ISBN: 978-0750633581

Physical Asset Management: With an Introduction to ISO55000 by Nicholas A.J. Hastings, 2nd ed 2015 Edition.
Publisher: Springer. ISBN: 978-3319147765

Delivery Format

Class format is online.

Course Content

UNIT	TOPIC(S)	OBJECTIVES
1.	<ul style="list-style-type: none"> Welcome Importance of effective asset lifecycle delivery activities Technical Standards & Legislation 	<ul style="list-style-type: none"> Welcome to the course Student homepage Introduce asset LCDA Outline the importance of LCDA Describe some scenarios and their consequences Distinguish between different failure patterns Understand the drivers of LCDA Understand consequences and level of risk
2.	<ul style="list-style-type: none"> Asset Creation and Acquisition System engineering Value Management Installation & Commissioning 	<ul style="list-style-type: none"> Understand the capital investment planning Describe Project Management phases Introduce Design For Reliability Introduce System Engineering Asset / Asset System Describe Configuration management Introduce Value Management process Pre-start up process Define asset performance standards in current operating context
3.	<ul style="list-style-type: none"> Reliability Centered Methodologies Function Functional Failure 	<ul style="list-style-type: none"> Introduce Criticality Analysis Introduce RCM Introduce RBM Define asset function Distinguish between primary and secondary function Define functional failure Practice writing functional failures Introduce FMEA Information Worksheet
4.	<ul style="list-style-type: none"> Failure Mode Failure Effect Failure Consequences 	<ul style="list-style-type: none"> Define failure mode Define failure effect Practice an FMEA Define failure consequences Evaluating consequences of failure Introduce reliability Decision Diagram Explain hidden failure and evident failure
5.	<ul style="list-style-type: none"> Proactive Maintenance Scheduled Restoration/Discard Tasks On-Condition Tasks 	<ul style="list-style-type: none"> Define proactive maintenance Understand effectiveness of proactive maintenance Define scheduled restoration tasks Define scheduled discard tasks Understand justification of tasks Define on-condition tasks Introduce P-F curve and interval Describe predictive maintenance techniques

		<ul style="list-style-type: none"> • Overview of predictive maintenance technologies
6.	<ul style="list-style-type: none"> • Default Maintenance • Failure Finding Tasks • Run To Failure • Redesigns • Asset Operations • Total Productive Maintenance 	<ul style="list-style-type: none"> • Define default maintenance • Define failure finding tasks • Introduce failure finding interval • Define run to failure • Understand justification of RTF • Introduce redesign • Use reliability Decision Worksheet • Introduce asset operations • Define AO Strategy and Plan • Understand operator errors/Ergonomic Studies • Introduce some examples • Introduce TPM
7.	<ul style="list-style-type: none"> • Resource Management • Shutdown & Outage Management 	<ul style="list-style-type: none"> • Introduce Work Packaging • Describe skill sets required to implement activities • Describe work prioritization • Introduce Planning & Scheduling • Describe P&S techniques • Materials Management • Introduce shutdown • Describe process to manage shutdown
8.	<ul style="list-style-type: none"> • Reliability Engineering • Incident Response 	<ul style="list-style-type: none"> • Introduce RAM • Define Availability • Introduce MTBF, MTTR • Introduce Reliability • Describe application of Reliability Engineering • Calculate reliability of asset/asset system • Define Incident response • Introduce FRACAS • Introduce Root Cause Analysis • Apply RCA process
9.	<ul style="list-style-type: none"> • Asset Rationalization • Asset Disposal 	<ul style="list-style-type: none"> • Describe asset rationalization – renewal, new • Explain the drivers for rationalization • Describe the justifications – Improvement; RAM; • Introduce lifecycle costing • Explain Redundancy • Introduce asset disposal and costs associated
10.	Review & Final Exam	<ul style="list-style-type: none"> • Wrap up • Final Exam

Please note: this course schedule may change as resources and circumstances require.

Student Evaluations

A minimum grade of 60% is required to pass the course.

Online Discussion	45%
Assignments	30%
Final Exam	25%

Total Marks = 100%

Grade Report, Transcript, and Certificate

Upon completion of a course, student access grades by logging into Myhumber at www.humber.ca/myhumber using the Humber issued username and password. For assistance logging in, or for a password reset, visit www.its.humber.ca. Grades will not be released over the phone or by email.

Tests and Assignments

Assignments must be submitted on or before the "due date", as directed by the instructor. Late submissions, without valid reasons (such as illness or emergency) or without prior arrangement may be penalized by the instructor, normally at 10% per day, or as announced by the instructor. Days of lateness will include weekends and holidays. If for valid reasons, an assignment/evaluation cannot be completed on time, then a reasonable penalty-free time extension may be given by the instructor. Claims of illness or other emergencies may have to be documented, if required by the instructor or the administration.

Advanced notice by email is required if you are going to miss a test or exam for valid reasons, and supporting documentation must be submitted. If you miss an exam without prior notice due to illness or some emergency, you must provide the reason in writing to the instructor along with supporting documentation, within 3 days of the missed exam, **with a copy to the program liaison at ceparttime@humber.ca**. If your reason is accepted, arrangements will be made for you to write the exam.

Accessible Learning Services

Humber strives to create a welcoming environment for all students where equity, diversity and inclusion are paramount. Accessible Learning Services facilitates equal access for students with disabilities by coordinating academic accommodations and services. Staff in Accessible Learning Services are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. If you require academic accommodations, contact:

Accessible Learning Services: <http://www.humber.ca/student-life/swac/accessible-learning>

North Campus: (416) 675-6622 X5090

Lakeshore Campus: (416) 675-6622 X3331

Accommodations for Religious Observance

Humber College is committed to respecting the religious/spiritual beliefs and practices of all members of the community, and making accommodation for religious/spiritual observances.

Students who require an accommodation for a religious/spiritual observance must notify the professor as soon as the time conflict is known. It is the student's responsibility to contact the professor to arrange the accommodation for a lecture, test, exam, clinical placement, work placement or any other academic situation that conflicts with a day or time period for religious observances of special significance to them. Ideally, students will provide their professor with three weeks notice for a required accommodation. In all cases, the request for an accommodation must be made in writing.

Standards

1. Expectations for maintaining a Positive Learning Environment

Attendance is essential for academic success. Therefore, you are expected to attend 100% of all classes and complete all assignments.

It is your responsibility to be aware of your attendance record and the progress of your work and grades.

In order to maintain a positive and productive learning environment, you are expected to

- Turn off and put away all cell phones and remove headphones in class
- Maintain a courteous and respectful attitude

2. Use of Laptop Computers

Your professor sets the policy for laptop use in the classroom. If permitted, you may use your laptop to take notes and complete class-related activities. The Internet is to be accessed for class purposes only **and** with explicit instructions from your professor.

E-mailing and chatting are strictly prohibited. On the first offence, you will be asked to put the laptop away. On the second offence, you will be banned from using the laptop and may be asked to leave the class.

Discrimination and Harassment

At Humber College, students, staff and faculty represent the broad spectrum of diversity and richness that is characteristic of our society. All students and employees have the right to study, live, and work in an environment that is free from discrimination and harassment. It is therefore the policy of Humber College that it's working, living and learning environments assert the personal worth and dignity of each individual. In order to achieve this objective, Humber College will not tolerate any form of discrimination or harassment in its employment, education, accommodation, or business dealings. Information and assistance are available from Nancy Simms, Manager, Human Rights & Diversity at **(416) 675-6622, ext. 4425**, or by email at nancy.simms@humber.ca .

For further information please visit: www.hrs.humber.ca/diversity

Policies and Procedures

It is the student's responsibility to be aware of the College Academic Regulations **Policy** which can be found at: <http://www.humber.ca/academic-regulations>.

Copyright

Copyright is the exclusive legal right given to a creator to reproduce, publish, sell or distribute his/her work. All members of the Humber community are required to comply with Canadian copyright law which governs the reproduction, use and distribution of copyrighted materials. This means that the copying, use and distribution of copyright-protected materials, regardless of format, is subject to certain limits and restrictions. For example, photocopying or scanning an entire textbook is not allowed, nor is distributing a scanned book. See the Humber Libraries website (<http://library.humber.ca>) for additional information regarding copyright and for details on allowable limits.

Academic Integrity

Academic integrity is essentially honesty in all academic endeavors. Academic integrity requires that students avoid all forms of academic misconduct or dishonesty, including plagiarism, cheating on tests or exams or any misrepresentation of academic accomplishment.

Academic Dishonesty

Plagiarism is the serious offence of academic fraud that involves using someone else's words and/or ideas in whole or in part from any printed or electronic media without documentation

Cheating is the serious offence of academic fraud that involves obtaining answers to exam and test questions through unauthorized means, such as hidden or electronic notes, accessing unauthorized test questions from an electronic database, or copying from another student.

Students are responsible for knowing what constitutes an academic offence and for being aware of the applicable requirements that may apply within their program. Any student responsible for academic misconduct will be dealt with according to the department policy in accordance with Humber's Academic Regulations Policy, and can face various sanctions such as a grade of zero for the course, suspension from the program, or expulsion.

Academic Concerns/Appeals

If a student has questions or concerns regarding a grade on an assignment or test, the student should discuss the matter with the faculty member. The Program Liaison be asked to assist if the faculty member and student are unable to resolve issues. For additional information please refer to Section 13 of College's Academic Complaint and Appeal Policy at the web site identified above.

Disclaimer

While every effort is made by the professor/faculty to cover all material listed in the outline, the order, content, and/or evaluation may change in the event of special circumstances (e.g. time constraints due to inclement weather, sickness, college closure, technology/equipment problems or changes, etc.). In any such case, students will be given appropriate notification in writing, with

approval from the Program Liaison.