SBM2601 Fundamentals of Enterprise Asset Management

UOS CODE SBM2601	UOS NAME Fundamentals of Enterprise Asset Management	CREDIT POINTS 6	STATUS Elective
SUMMARY	Enterprise asset management (AM) has assumed strategic importance in industries that rely on capital- intensive assets as means of production, including utilities, manufacturing, mining, construction and agriculture. Both public and private organisations are under strong pressure to get the maximum out of their assets, which could be tangible (e.g. buildings, equipment) or intangible (e.g. software, intellectual property). The dilemma faced by major organisations is that their asset renewal and replacement decisions have to be based on long-term assumptions about market continuity and operational periods; whereas, the demand for services or product is typically short-term and fluctuates with time. So, a holistic approach that reconciles the long-term nature of strategic asset management and short-term nature of customer needs and preferences is needed to ensure high returns on the organisation's assets while streamlining AM policies in-line with organisational objectives. It ensures that optimal decisions for the use and care of asset are consistently made and implemented, i.e. decisions, which constitute the best business value with optimal resolution of risk and uncertainties. The purpose of such a management approach is to ensure assets remain capable of delivering the performance required by the business, over the asset life cycle. This unit will provide an introduction to the enterprise asset management with focus on management of assets in a holistic manner and prepare for advanced asset management unit. It covers the following topics: • Holistic asset management in capital intensive industries • Asset life cycle planning (considerations in design, procurement, installation, commissioning, operation, maintenance and decommissioning /replacement of an asset, and its budgeting, planning and total cost management) • Project-based asset management, techniques of reconciling asset capabilities and range with customer and market needs and requirements • Streamlining asset management with operations, reducing downtime and maximising asset productivity life with optimal maintenance • Operational risk management and response to asset failures • Environmental sustainability and other considerations		

COURSE CONVENOR **COURSE TUTOR**	TBA			
ASSUMED KNOWLEDGE	Not applicable			
APPROXIMATE WORKLOAD	**Lectures & Workshops**	**Team Work**	**Personal Work**	**Readings**
	30 hours	>30 hours	>50 hours	>30 hours
PRE-REQUISITE (course name)	None			

OBJECTIVES	Students should gain expertise in the following areas:
	⊕ Asset management (AM) framework: a strategic overview of (AM); aligning with organisational objectives, vision and mission.
	⊕ Hierarchical model for asset management:
	⊕ Financial and non-financial aspects of AM
	⊕ Planning for asset acquisition: assessing value of the asset and lifecycle considerations
	⊕ Life cycle costing of assets
	⊕ Lifecycle of an asset: purchase, deployment, maintenance and end of life
	⊕ Asset life cycle constraints: aging, technology obsolescence, and their impacts
	⊕ Business and technical processes during asset lifecycle
	⊕ Decision making process for asset acquisition
	⊕ Capability assurance during an asset lifecycle: maintenance and upgrading
	⊕ Managing risks: insurance, back-up, sharing assets, etc. and reliable operations, cost and risk trade-off
	⊕ Design considerations in asset lifecycle: role of systems development, program/project management, and processes
	⊕ Measuring an asset's performance over its life
	⊕ Standards for asset management
	⊕ Considerations in AM: e.g. sustainability, environmental sensitivity, knowledge management
TARGET COMPETENCIES (Enterprise Systems and Business Process Integration)	Upon completion of the course, the student should demonstrate:
	⊕ A sound understanding of definitions and terms of enterprise asset management (AM)
	⊕ Theoretical knowledge of basic AM framework and models
	⊕ Developing financial and non-financial criteria for asset acquisition
	⊕ Assessing the value of an asset considering its expected life cycle, acquisition, operational and removal costs.
	⊕ Developing roadmap to minimise the cost and optimise the cost of an asset
	⊕ Applying decision making methods and techniques for asset investment decisions
	⊕ Developing models for asset life cycle
	⊕ Producing and measuring indicators for the asset utilisation: how effective and efficient
	⊕ Providing perspectives to relevant technical and operational groups for designing a system with optimum asset utilisation
	⊕ Developing risk management plans to compromise with risk/cost trade-offs
	⊕ Compliance with legal requirements and standards in AM
	⊕ Ability to view from a wider perspective of AM considering other aspects: knowledge acquisition and retaining, polluting the environment, human resources management, etc.
TARGET COMPETENCIES (Personal and Socio-cultural)	⊕ Generic: All competencies that are common to all professionals (including cognitive and communication abilities, problem solving and analytical mindset)
	⊕ Leadership: Ability to direct, motivate & manage individuals & teams.
	⊕ Commitment: Ability to dedicate to tasks & to project outcomes.
	⊕ Attitude: Ability to create the right frame of mind that promotes integrity & support for achievement of project goals within a social context.
	⊕ Self Direction: Ability to manage within and without guidelines & processes, and to work without supervision.
	⊕ Learning: Ability to commit to continuous improvement in knowledge, skills & attitude, & to creating new knowledge developing skills & approaches.
	⊕ Cultural Empathy: Ability to respect for & accommodation of individual lifestyle, beliefs & norms.
	⊕ Creativity & Innovation: Capacity to generate new ideas/approaches & make them happen.

MODES OF DELIVERY	• Upfront intensive workshop (4 days) • Project and team based flexible work facilitated via the Internet (over 10 weeks) • Face-to-face formal assessment (one week)	
ASSESSMENT	1. Formal knowledge test 2. Team project submissions (formatted as per specification for the same) 3. Formal assessment against competencies applicable to organisation unit strategy and design 4. Formal personal & socio-cultural competency assessment	
	PRESCRIBED FOR THE COURSE	**SELECTED REFERENCES**
PRINTED MATERIALS	**Learning material (lecture notes, slides, case study and other material provided online).** **Case project** (students' own case project subject to endorsement)	Wilson A (2002) *Asset Maintenance Management: A Guide to Developing Strategy and Improving Performance*, Industrial Press, Inc Mitchell J S, Amadi-Echendu J E, Barringer H P, Bond T H and Hickman J E (2006) *Physical Asset Management Handbook* Clarion Technical Publishers *Zahra Jabiri (2007) Project-based Management of Asset Intensive Organisations,* PhD thesis, University of Sydney
WEB SITES	No single web site presents all the necessary knowledge that students need to learn and apply. However, opposite are some useful sites to visit.	**Online useful sources of references are:** TBA
Software	Not applicable	Students may wish to use software for normal typesetting, graphic design and associated tasks
COURSE CONTENTS	**Intensive Phase** **Day 1** • Introduction to course aims, objectives, target competencies, learning strategies, resources available, timetable and deliverables, assessment methods and related briefings • Briefing on how to conduct each phase and the entire unit of study • Lecture: Enterprise Asset Management (AM) - a strategic view • Lecture: Modelling AM: stakeholders, processes, relationships • Lecture: Life cycle of an asset • Tutorial: Examining the basic life cycle of an asset – example cases **Day 2** • Lecture: Valuation of an asset – financial and non-financial criteria • Lecture: Decision making for asset acquisition • Lecture: Measuring asses utilisation against the pre-determined criteria • Tutorial: Cases for effective and ineffective asset utilisation – how good and bad selections impact the degree of achievement towards organisational objectives **Day 3** • Lecture: Designing for optimum life cycle utilisation • Lecture: Modelling asset life-cycle and drawing a roadmap: removal, upgrading,	

	and technology change
	• Lecture: Aligning technical and operational groups in coherence with asset roadmap
	• Tutorial: Examining an example asset roadmap, and maximising the value to the organisation.

Day 4
- Lecture: Managing risks during an asset life cycle – compromising cost/risk trade-offs.
- Lecture: Standards and legal requirements for asset management
- Lecture: Other considerations in asset management.
- Reinforcing learning outcomes and application of the same to forthcoming team project
- Conduct of written test on organisation unit strategy and design
- Students' feedback on the intensive phase

Teamwork phase

For the purposes of developing expertise in organisation unit strategy and design in an integrated and meaningful manner, students in teams of 4 to 5 will assume responsibility for developing a plan for managing an asset in a case organisation unit. The case organisation is individual to each team and will be sourced normally from one of the students' employer organisations.

In summary the project phase will comprise:
- An overall process for studying organisation enterprise systems and for applying the relevant knowledge to a real life case organisation as per the relevant Brief that is downloaded from the unit's web site;
- A program of the learning activities which are part of student's Team Workplan and individual competency acquisition needs which each student needs to plan to conduct flexibly within the unit of study timeline as advised in the unit's web site (detailed schedules are to be developed and submitted as part of the Team Work/QA Plan)
- The assignment Brief which is available as a downloadable file. Your team may develop your own Brief/project concept, and upon the Course Convenors' endorsement use the same as the basis for learning and development. Your brief should be developed to be similar to that found on the unit's web site.

The Learning activities are designed for each team to develop and evaluate a complete organisation unit strategy and design for their case organisation via the following activities:

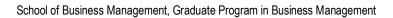| Assessment of learning styles and team roles and balancing of team development of self management and socio-cultural/teamwork competencies			
Activity 1 Case organisation selection and team QA/workplan	**Activity 2** Conceptual and Fieldwork Related to Asset Management in a Case Organisation	**Activity 3** Organisation Unit Design or Change Plan for Case Organisation	**Activity 4** Evaluation, Formatting and Presentation of the Plan
Continuous reflection, self and peer assessment and competency acquisition Final Individual Report and Viva to validate competencies vis-à-vis target competencies			

COMPETENCY VALIDATION (via evidence and professional

Final Report & assessment

Each student is advised to progressively acquire, develop and document the relevant target competencies. The protocols on the web site for this purpose need to be followed carefully to prepare the required evidence of competency acquisition. The evidence for this unit to comprise a *Final Report* in two parts to validate individually the following:

| *interview)* | specific target competencies regarding basis asset management as well as personal and socio-cultural competencies. These will be assessed separately and both need to show the student's development history using the student's L&D plan as the basis. |