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| **Cape Peninsula University of Technology** | |
| **Faculty** | Engineering |
| **Department** | Electrical, Electronic and Computer Engineering |

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| **Qualification information** | |
| **HEQSF Qualification type & title** | Master of Engineering in Satellite Systems and Applications  MEng (Satellite Systems and Applications) |
| **Total number of SAQA credits** | 180 |
| **NQF level (exit)** | 9 |

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| **Subject information** | | | | |
| **Level of study**  **e.g. Year 1, 2, etc.** | **Name of subject**  **Consult CPUT Subject naming convention (2014)** | **SAQA credits** | **NQF level** | **Compulsory/ elective subject** |
| 5 | Management of Space Technology | 15 | 9 | Elective |
| **Description of subject content**  **Provide a short description of the subject content to be covered – NOT a list of topics only, but a narrative explaining the nature, purpose and focus of the subject and its relationship with other subjects at the same level of study.** | | | | |
| Management of Space Technology (MoST) is designed to teach students about space business, innovation and management. This course delves into the advantages of space technology for economic growth, new markets and applications as well as space programs management, technology innovation and space-based technology commercialisation.  As a first course in MoST, the students are introduced to six major topical areas: Strategic management of Technology, Introduction to corporate finance, Digital marketing, Emerging Technologies, Technology-Based Entrepreneurship, Managing of Diversity. While each of these topics is a rightful subject area in their own, the course aims to introduce students to some key focus areas within each of these topical areas. | | | | |

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| **Learning outcomes of subject**  **Consult the SAQA level descriptors and Blooms’ taxonomy to define the learning outcomes to be achieved by students.** | **Associated assessment criteria**  **Use the CPUT guidelines on how to write learning outcomes and associated assessment criteria.**  **A learning outcome may have more than one assessment criterion.** |
| * *Strategic management of Technology*  1. Have an understanding of organisational structure & design.   Be able to analyse a company’s resources and skills. | * Identify a range of relevant and reputable resources for further information including textbooks and journal articles. * Understand the importance of making strategic choices and decision that shape the future of the business. * Assess and choose the strategies for different organisations. * Integrate the different organisational components. |
| * *Introduction to corporate finance*  1. Understand the role of financial management in today’s business environment. | * Identify a range of relevant and reputable resources for further information including textbooks and journal articles. * Understand the most important accounting principles used to prepare financial statements. * Understand financial markets and corporate finance. * Value a private company and make investment decisions. |
| * *Digital marketing*  1. Understand online strategy, optimising of the website and targeting the right audience. | * Assess your own skills for marketing. * Be capable of doing a marketing plan. |
| * *Emerging Technologies*  1. Understand Hype cycle for emerging technologies. | * Identify a range of relevant and reputable resources for further information including textbooks and journal articles. * Identify salient characteristics of Emerging Technologies. * Critically assess potential new technologies using appropriate methodologies. |
| * *Technology-Based Entrepreneurship.*  1. Understand entrepreneurship and its role in fostering technology innovation. Understand the issues associated with the transfer of technology to new business ventures. | * Identify a range of relevant and reputable resources for further information including textbooks and journal articles. * Describe the models and methodologies of creating new ventures. * Describe the social and legal dimensions of entrepreneurship. |
| * *Managing of Diversity*  1. Understand diversity and the management of diversity. Understand working in a multi-cultural context. | * Identify a range of relevant and reputable resources for further information including textbooks and journal articles. * Identify some of the factors that influence how decisions are made in cross-cultural management contexts. * Describe key models and concepts used for comparing /contrasting cultures. * Assess your own cultural paradigm. * Identify aspects of overlap between national cultures and organisational cultures. |
| **Prescribed books**  **Include a short list of prescribed books/reading material. Use the Harvard referencing system for this purpose. Use the latest editions of these publications.l** | |
| * Griffin and Moorhead (2014). *Organizational Behavior: Managing People and Organisations*, 11th edition. Cengage Learning. * Maher et al. (2011). *Managerial Accounting: An Introduction to Concepts, Methods and Uses*, 11th edition, Cengage Learning. * Schilling (2012). *Strategic Management of Technological Innovation*. 4th edition. McGraw-Hill. | |
| **Teaching & learning strategy for subject**  **Include details about the teaching-learning methods that will be adopted on this subject.** | |
| * Teaching will be through lectures and industrial case studies. Includes individual and group projects and project preparation, and participation in student-led project presentations, and critical reflection. * Various methods will enhance the students’ thinking skills, including industrial case studies allowing application of knowledge to real-life scenarios. * A number of teaching and learning strategies will be used in this course. Emphasis has been placed on spreading the learning strategies over as many learning categories as possible. * Direct instruction will form part of the teaching strategy through formal lectures, slide presentations, explicit teaching, guided and shared reading as well as the use of multimedia. * Interactive instruction will be incorporated in the form of debate, peer assessment, class discussion, tutorials and team-based learning. * Indirect learning instruments will also be used in the form of case studies, problem-solving, reflective discussion, concept formation and concept mapping. * The content has been developed in such a way as to give students ample opportunity to practice monitoring their learning and adapting as necessary. | |
| **Assessment strategy**  **Include details about the assessment strategy (assessment methods & techniques, etc.)** | |
| **Provide details on formative and summative assessment methods** | |
| * **Methods of assessment:**   Class tests, assignments, tutorials, presentations   * **Formative:**   Here the feedback provided supports the expected learning.  There will be no grading for the formative evaluations.   * + Students will develop appropriate processes of information gathering. These will be assessed on an ongoing basis when used in defence of chosen methods in group discussion and one on one discussions.   + There will be ongoing assessment and appraisal of proposal progress where students will be guided through group discussion until completion of the proposal.   + The student must critically discuss concepts individually and as part of a group. * **Summative:**   Here we want to assess the extent to which the student has achieved curricular objectives. The grade will form part of the overall grade at the end of the study unit.   * + Students will have to submit a project proposal.   + Students will present their projects and findings in class, communicating their own ideas and opinions, to be questioned and critiqued my a mixed audience. | |
| **Provide details on assessment techniques (e.g. written test) and assessment tasks** | |
| The students will be assessed using assignments, integrated projects, practical work, tutorials and written evaluations.  **Assignments:**  Students have to consult a range of prescribed resources in order to solve the posed problem. A formal foundation will be laid in class via formal lectures, but students then have to expand on these concepts in applying them in familiar and unfamiliar situations.  **Written assessments**.  Here the emphasis is placed on the theoretical component of the courses. The heavier weighting of the assessments reflects the volume of material that will be assessed.  **Presentation and Integrated Project:**  The student will decide on a component of a major project. Each students project contribution will slot into the formation of the final major project. The project progress will be evaluated on an ongoing basis. On completion, the project will be presented and defended to an audience of peers and guests.   |  |  |  | | --- | --- | --- | | **Assessment Type** | **Assessment Weight** |  | | Class Tests (3) | 0% | None | | Assignments | 0% | Two assignments (formative) | | Practical work | 0% | None | | Tutorials | 0% | None | | Presentations + Integrated Project | 50% | Comprehensive business simulation | | FISA | 50% | A written evaluation assessing the strong theoretical component of outcomes 1-6. This evaluation spans all objectives | | Total | 100% |  | | |

**Please note: The subject information should be completed for each subject of the qualification. Copy and paste the master template with the subject information for the number of subjects in the programme.**

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| **NAME OF SUBJECT/COURSE** | **THIRD ORDER CESM** | **SAQA CREDIT** | **HEMIS CREDIT** | **NQF LEVEL** |
| **MEng: Satellite Systems and Applications** |  |  |  |  |
| YEAR 1 - Compulsory modules |  |  |  |  |
| Satellite Applications | 080901 | 18 | 0.100 | 9 |
| Satellite Mission Analysis and Design | 080101 | 18 | 0.100 | 9 |
| Engineering for Space Environment | 080101 | 21 | 0.116 | 9 |
| Satellite Subsystems | 080101 | 18 | 0.100 | 9 |
| Research Methodology | 0899 | 15 | 0.083 | 9 |
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| YEAR 2 - Compulsory module |  |  |  |  |
| Mini Thesis | 080101 | 75 | 0.417 | 9 |
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| Student can elect either group 1 or group 2 |  |  |  |  |
| ***Elective group 1*** |  |  |  |  |
| General History of Africa | 200302 | 7.5 | 0.042 | 9 |
| Gender and Human Rights | 120107 | 7.5 | 0.042 | 9 |
| ***Elective group 2*** |  |  |  |  |
| Management of Space Technology | 040199 | 15 | 0.084 | 9 |
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| **Total MEng** |  | **180** | **1.000** |  |