Master of Information Systems Management (MISM – Global Track)
Five semesters (2 years)
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1. INTRODUCTION

This handbook provides specific information on the curriculum and program requirements for the Master of Information Systems Management (MISM) - Global track. CMU-A also publishes a separate handbook which details campus-wide policies and procedures pertaining to educational planning, program committee, teaching, scheduling and course credit, performance standards, academic standing, ethics and discipline, student privacy rights and major forms and deadlines. Students should familiarize themselves with both handbooks as they include information that is critical for your success. Both handbooks can be obtained through the Senior Director of Academic Institutional Development and via the CMU-A website and portal.

2. MISSION STATEMENT

The Global MISM 21-month curriculum, comprised of business and technology courses, is designed to propel students along a more successful career path in information systems management. Created by a world-class faculty, the program is a five-semester, intensive, on-campus master’s program developed to meet the needs of those desiring to gain the required skills while spending a minimum amount of time outside the workforce. The curriculum emphasizes the importance of the interrelationships across technology, management and strategy.

Students in the MISM program should be able to:

- Combine management and technology skills gained in the classroom that can be directly applied in a professional IT environment; and
- Create organizational value through the effective deployment of IT.

3. CURRICULUM

The MISM curriculum is structured with required Information Systems (IS) courses, required Management courses, and elective courses. Full-time students complete the program over five study periods.

For successful completion of the MISM program, you must complete 180 units total:

- complete 132 units of core requirements (including a 24-unit Information Systems Project) (unless exempt)
- complete 48 units of electives
- complete a 10-12 week internship
- achieve an overall grade point average of at least 3.0

MISM students who complete a specialization are NOT required to take elective courses in addition to the courses required for a specialization. Thus, students will be able to complete both the degree requirements and the specialization requirements with 180 units of coursework. However, you should consult your
advisor and plan your course selection very carefully in order to make this possible since the maximum units taken each semester may not exceed 60.

**Core Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-705</td>
<td>Telecommunications Management</td>
<td>12</td>
</tr>
<tr>
<td>95-712</td>
<td>Object Oriented Programming in Java</td>
<td>12</td>
</tr>
<tr>
<td>94-702</td>
<td>Strategic Writing Skills</td>
<td>6</td>
</tr>
<tr>
<td>90-718</td>
<td>Strategic Presentation Skills</td>
<td>6</td>
</tr>
<tr>
<td>95-703</td>
<td>Database Management</td>
<td>12</td>
</tr>
<tr>
<td>95-710</td>
<td>Economic Analysis</td>
<td>6</td>
</tr>
<tr>
<td>95-715</td>
<td>Financial Accounting</td>
<td>6</td>
</tr>
<tr>
<td>95-716</td>
<td>Principles of Finance</td>
<td>6</td>
</tr>
<tr>
<td>95-722</td>
<td>Digital Transformation</td>
<td>6</td>
</tr>
<tr>
<td>94-700</td>
<td>Organizational Design &amp; Implementation</td>
<td>6</td>
</tr>
<tr>
<td>95-796</td>
<td>Statistics for IT Managers</td>
<td>6</td>
</tr>
<tr>
<td>95-702</td>
<td>Distributed Systems</td>
<td>12</td>
</tr>
<tr>
<td>95-706</td>
<td>Object Oriented Analysis &amp; Design</td>
<td>6</td>
</tr>
<tr>
<td>95-760</td>
<td>Decision Making Under Uncertainty</td>
<td>6</td>
</tr>
<tr>
<td>95-720</td>
<td>Information Systems Project</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td><strong>Total core:</strong></td>
<td><strong>132</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Electives:</strong></td>
<td><strong>48</strong></td>
</tr>
</tbody>
</table>

**Specialization in Business Intelligence**

As Information Technology has become more widely deployed in organizations, opportunities arise for collecting and storing data contributed by human users (e.g., blogs, knowledge management systems, wikis) as well as the data produced as a side effect of the use of systems (e.g., transactional data, click stream data, system logs) by customers, suppliers and internal staff. Taking advantage of these opportunities requires paying attention to organizational issues (e.g., incentives for contribution to knowledge management systems) as well as a number of technical issues (e.g., data quality, middleware and systems integration, data and text mining).

Business Intelligence is about addressing these challenges and using analytics to address a range of strategic, tactical and operational planning problems. This specialization in BI prepares you to address the technical, strategic and managerial issues associated with the extraction, transformation, representation, and analysis of data.

**Course Requirements for Specialization in Business Intelligence**

MISM Students wishing to complete a specialization in Business Intelligence while pursuing their degree must complete the following 48 units of course work:

- Data Structures and Algorithms (12 units)
- Data Mining (6 units)
- Data Warehousing (6 units)
• Applied Data Science (6 units)

AND

• At least 18 units from the following:
  • Geographic Information Systems (12 units)
  • Advanced Relational Database Management (6 units)
  • NoSQL Database Management (6 units)
  • Business Process Modeling (6 units)
  • Marketing and Digital Strategy (6 units)
  • Large Scale Data Analysis for Public Policy (6 units)

**Specialization in Information Security Management**

The security of data, systems, and networks has become one of the most crucial managerial, organizational, and policy issues in the country today. This specialization integrates technical, managerial and policy issues in information security and assurance. Classes in the ISM specialization are taught by faculty from the Heinz College and renowned experts in information security from the Software Engineering Institute’s CERT Coordination Center.

**Course Requirements for Specialization in Information Security Management**

MISM Students wishing to complete a specialization in Information Security Management while pursuing their degree must complete the following 48 units of course work:

• Introduction to Information Security Management (12 units)

AND

• At least 36 units from the following:
  • Privacy in the Digital Age (6 units)
  • Information Security Policy & Governance (6 units)
  • Information Security Risk Management (6 units)
  • Network & Internet Security (12 units)
  • Usable Privacy and Security (12 units)
  • Applied Information Assurance (12 units)
  • Host Based Forensics (12 units)
  • Network Situational Awareness (12 units)
  • Ethical Penetration Testing (6 units)

**Specialization in Electronic Commerce**

The Internet has given rise to new organizational forms (e.g., virtual organizations) and markets which feature electronic transaction models in new categories of products and services which include consumer-business, business-business and intra-organizational commerce in physical as well as digital products. With the increased popularity and significance of the Internet, most organizations will need to carefully study this technology in order to develop strategies best suited to their context.
Successful Electronic Commerce involves blending technological, marketing and management practices in ways that are fundamentally new considering issues (e.g., copyright, privacy, content selection and rating, and intellectual property) that can have potentially profound implications for society.

Course Requirements for Specialization in Electronic Commerce

MISM Students wishing to complete a specialization in Electronic Commerce while pursuing their degree must complete the following 48 units of course work:

- Measuring Social (12 units)
- Marketing Digital Media (6 units)
- E-Commerce Technologies (6 units) or Service Oriented Architectures (6 units)

AND

- At least 24 units from following list:
  - Data Mining (6 units)
  - Network & Internet Security (12 units)
  - Lean Entrepreneurship (6 units)
  - Business Process Modeling (6 units)
  - Tech Startup: Tools & Techniques (6 units)

Specialization in Healthcare Informatics

As hospitals, insurers, governments, and consumers press for more effective treatments, more efficient providers, and cheaper healthcare, the importance of effectively collecting, managing, and analyzing information grows. The challenges associated with combining biological, medical and healthcare knowledge, organizational management, strategic analysis, and technological innovation into effective systems is the subject of healthcare informatics. In recent years, there has been an explosion in person-specific data. Having so much data available has allowed knowledge discovery in data (or data mining) to take a central stage.

Many other and diverse new areas are simultaneously emerging. As a result, healthcare informatics is simultaneously promoting diverse areas such as:

a. Decision making and decision support
b. Healthcare information technology adoption and diffusion
c. Public health informatics
d. Social and digital analytics in healthcare.

Course Requirements for Specialization in Healthcare Informatics

MISM Students wishing to complete a specialization in Healthcare Informatics while pursuing their degree must complete the following 48 units of course work:

- Health Economics (12 units)
- Healthcare Information Systems (12 units)
AND

- At least 24 units from the following list:
  - Introduction to Information Security Management (12 units)
  - Data Mining (6 units)
  - Advanced Relational Database Management (6 units)
  - NoSQL Database Management (6 units)
  - Privacy in the Digital Age (6 units)
  - Data Warehousing (6 units)
  - Business Process Modeling (6 units)
  - Measuring Social (12 units)
  - Healthcare Informatics Project course (24 units)

- Health Economics takes the place of Economic Analysis requirement

Specialization in IT Strategy and Management

The IT Strategy & Management specialization is geared for students with CIO aspirations. Students take a combination of leadership, process, and IT management classes to prepare them to lead organization in today’s complex, digital world. The focus of this concentration is on understanding and leveraging the connectivity across people, processes, and technology.

IT--enabled relationships and services are redefining organizational boundaries. This redefinition calls for a blended set of business, technology, and interpersonal skills.

Course Requirements for Specialization in IT Strategy and Management

MISM Students wishing to complete a specialization in IT Strategy and Management while pursuing their degree must complete 48 units of the following course work:

- Business Process Modeling (6 units)
- Negotiation (6 units)
- IT Project Management (6 units)
- Strategy Development (6 units)
- IT Global Sourcing (6 units)
- Marketing Digital Media (6 units)
- IT Business Leadership (6 units)
- Introduction to Supply Chain Management and Systems (6 units)
- Product Management for Information Technology (6 units)

AND

- Students are required to join the AT Kearney/Tepper/MISM project alternative
Elective Courses

Students in MISM program are required to take at least 48 units of elective courses. A number of courses offered by the MISM Program and the Heinz College will satisfy this requirement. In addition, the School of Computer Science, and other Carnegie Mellon departments offer courses that may satisfy this requirement. Check with your advisor before registering for a course from another academic unit if you wish to have it serve as an elective.

Sample Elective Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>95—-729</td>
<td>E-Commerce Technologies</td>
<td>6</td>
</tr>
<tr>
<td>95—-732</td>
<td>Marketing Digital Media</td>
<td>6</td>
</tr>
<tr>
<td>95—-733</td>
<td>Internet Technologies</td>
<td>6</td>
</tr>
<tr>
<td>95—-734</td>
<td>Advanced Relational Database</td>
<td>6</td>
</tr>
<tr>
<td>95—-737</td>
<td>Management NoSQL Database</td>
<td>6</td>
</tr>
<tr>
<td>95—-731</td>
<td>Data Structures and</td>
<td>12</td>
</tr>
<tr>
<td>95—-775</td>
<td>Algorithms IT Business</td>
<td>6</td>
</tr>
<tr>
<td>95—-794</td>
<td>Leadership</td>
<td>6</td>
</tr>
<tr>
<td>95—-797</td>
<td>Data Warehousing</td>
<td>6</td>
</tr>
<tr>
<td>95—-808</td>
<td>IT Project Management</td>
<td>6</td>
</tr>
<tr>
<td>95—-831</td>
<td>Enterprise Architectures</td>
<td>6</td>
</tr>
<tr>
<td>95—-865</td>
<td>Text Analytics</td>
<td>6</td>
</tr>
<tr>
<td>95—-869</td>
<td>Hadoop and MapReduce</td>
<td>6</td>
</tr>
<tr>
<td>95—-880</td>
<td>Python for Developers</td>
<td>6</td>
</tr>
<tr>
<td>95—-881</td>
<td>Web Application Development</td>
<td>6</td>
</tr>
<tr>
<td>94—-706</td>
<td>Healthcare Information Systems</td>
<td>12</td>
</tr>
<tr>
<td>94—-800</td>
<td>Negotiation</td>
<td>6</td>
</tr>
<tr>
<td>94—-802</td>
<td>Geographic Information Systems</td>
<td>12</td>
</tr>
<tr>
<td>94—-803</td>
<td>Consulting Communications</td>
<td>6</td>
</tr>
<tr>
<td>94—-823</td>
<td>Measuring Social</td>
<td>12</td>
</tr>
<tr>
<td>94—-840</td>
<td>Lean Entrepreneurship</td>
<td>6</td>
</tr>
<tr>
<td>94—-842</td>
<td>Programming R for Analytics</td>
<td>6</td>
</tr>
</tbody>
</table>

4. IS PROJECT

Project courses are organized around significant management problems, the solution of which requires a mix of technological, organizational, and social skills. As opposed to the traditional classroom setting, project courses are organized as an exercise in group problem solving. During their final semester of study, students are divided into teams guided by faculty.

Organization of IS Projects

The faculty member who supervises a project maintains relations with the client, directs and critiques the students’ work, coaches them for their presentations, and grades the students on their contributions to the projects as well as grading the overall projects.
IS Projects involve both oral and written work. Generally, each project makes at least one oral presentation to the client per semester; this presentation is open to the public and is advertised accordingly. Each student should participate in at least one oral presentation to the client. In addition, groups must produce an interim report and a final report. Each student should write a significant and identifiable section of the report and perform some nontrivial analysis, even if these efforts have to be improved upon by other members of the group before being included in a report to the client. The written report is expected to be of high quality but also produced on time. Each group must submit an electronic and hard copy of the final report to the Director of Programs.

Development of IS Projects
Typically, in the semester preceding the IS Project, proposals are generated by faculty and by organizations external to the College. Proposals may be initiated by students with an interest in a particular problem.

Assignment of Students to Projects
Students normally enroll in a project of their interest. Project groups are formed in the semester preceding the IS Project.

Grading of IS Projects
Students will receive an IS Project grade based on individual and group performance. In any group project there is an inherent tension between rewarding individual and group performance. This tension is in part by design, as it reflects some of the realities of group staff work in public and private organizations.

Grades in IS Projects are a combination of individual and group considerations. It is generally desirable that students perform multiple roles in projects, and it is recommended that faculty and student evaluations consider these various contributions.

5. INTERNSHIP

Overview
Students are required to undertake a 12-14 week internship in the 3rd or 4th semester. Students may intern with a company that: (1) corresponds to a field of interest or specialization area pre-existing within the program and (2) represents a variety of industry sectors including consulting, software companies, finance, and other types. Positions may also vary from IT managers, to security consultants, to business analysts, to applications engineers, and others.

The internship duties must have significant educational value that directly relates to the program. The internship will train students in ways significantly different from classroom instruction. By working in a professional environment, students will solidify mastery of knowledge gained in coursework, refine career interests, and establish personal networks which might lead to later career opportunities. The internship also provides the faculty with feedback about the relevance of the curriculum and the effectiveness of the teaching program.

Students will not receive academic credit for the internship but it will be reflected on their academic transcript as a course with Pass/No Pass grade. The Internship form needs to be approved before the beginning of the internship by the Senior Director of Academic and Institutional Development.

Securing an Internship
Students are responsible for securing a suitable internship. The Programs team provides assistance through counseling, workshops on resume preparation and interview skills, and listings of potential internships.
Students can discuss their situation on a one to one basis and are encouraged to attend workshops that cover the essential skills for finding the right internship.

**Internship Standards**

Students must complete an internship as an integral part of the degree program. Minimally, this requires the equivalent of 12 weeks of full time employment in a technical, managerial, or administrative position with a satisfactory evaluation by the supervisor of the internship.

Before a student begins their internship, they must file an Internship Approval Form with the Senior Director of Academic and Institutional Development and receive approval for the internship. Students will not be permitted to graduate if they accept or begin work at an internship which does not meet the program standards.

During the course of the internship, the Senior Director of Academic and Institutional Development will contact the supervisor to discuss students’ progress. The Senior Director of Academic and Institutional Development will also get in touch with a student during their internship to discuss their progress and any problems that arise. Students must notify the Senior Director of Academic and Institutional Development of any significant changes to the internship, such as length, location, hours of work.

At the end of the internship, the Senior Director of Academic and Institutional Development will request that the supervisor complete an evaluation form about the intern’s performance. They will also ask interns for a one-page self-evaluation of how the internship fulfilled the educational goals of the program and a short description of the employing organization, including a list of contact names, tasks and responsibilities that were cultivated. The Senior Director of Academic and Institutional Development will discuss these evaluations with each student personally to provide the appropriate feedback.

Based on the supervisor’s evaluation, the contact between the supervisor and the student, and the self-evaluation, the Senior Director of Academic and Institutional Development will advise the Faculty Committee if a student has satisfactorily completed the internship requirement. If a student does not successfully complete an eligible internship, they will have to complete one before they will be eligible to graduate.

The Senior Director of Academic and Institutional Development encourages students to advise any job opportunities within the internship organization which might be available for future graduates or interns. These descriptions will be maintained for reference by both first and second year students.

6. **CONVOCATIONS**

Convocation is a regular forum in which students have an opportunity to discuss and learn about a variety of issues. The purpose of CMUA convocation program is to inspire, motivate and open student’s thoughts to new ideas and areas. While topics are concentrated in the areas IT and PPM, the university actively seeks leaders that are leaders in their fields and have something to contribute to all-around education for our students from convocations. Sessions feature guest speakers, including those who lead organisations, analyse and develop policy as well as those who innovate in non-traditional ways.

This is a zero-credit course, with no assignments, but required attendance.
7. ACADEMIC INTEGRITY

Plagiarism and other forms of academic misrepresentation are viewed as extremely serious matters. Misrepresentation of another’s work as one’s own is widely recognized as among the most serious violations. The violation is clearly flagrant when it occurs as plagiarism on a required paper or as cheating on an examination, including take-home as well as in-class examinations. The punishment for such offenses can involve being dropped from your program. There are many other ways in which violations can occur. The circumstances and the rules may vary for different courses, and each instructor will establish his or her own rules for a particular course. Each student is responsible for understanding these rules.

The University policy on Cheating and Plagiarism is posted on Carnegie Mellon’s website at: http://www.cmu.edu/student-affairs/theword/acad_standards/integrity.html.

For comprehensive information and resources regarding Academic Integrity please go to: www.cmu.edu/academic-integrity

Definitions

The University’s definition for cheating and plagiarism and should be reviewed in its entirety on-line: http://cmu.edu/policies/documents/Cheating.html

**Cheating** occurs when a student avails her/himself of an unfair or disallowed advantage which includes but is not limited to:

- Theft of or unauthorized access to an exam, answer key or other graded work from previous course offerings.
- Use of an alternate, stand-in or proxy during an examination.
- Copying from the examination or work of another person or source.
- Submission or use of falsified data.
- Using false statements to obtain additional time or other accommodation.
- Falsification of academic credentials.

**Plagiarism** is defined as the use of work or concepts contributed by other individuals without proper attribution or citation. Unique ideas or materials taken from another source for either written or oral use must be fully acknowledged in academic work to be graded. Examples of sources expected to be referenced include but are not limited to:

1. Text, either written or spoken, quoted directly or paraphrased.
2. Graphic elements.
3. Passages of music, existing either as sound or as notation.
5. Scientific data.
6. Concepts or material derived from the work, published or unpublished, of another person.

**Unauthorized assistance** refers to the use of sources of support that have not been specifically authorized in this policy statement or by the course instructor(s) in the completion of academic work to be graded. Such sources of support may include but are not limited to advice or help provided by another individual, published or unpublished written sources, and electronic sources. Examples of unauthorized assistance include but are not limited to:
1. Collaboration on any assignment beyond the standards authorized by this policy statement and the course instructor(s).
2. Submission of work completed or edited in whole or in part by another person.
3. Supplying or communicating unauthorized information or materials, including graded work and answer keys from previous course offerings, in any way to another student.
4. Use of unauthorized information or materials, including graded work and answer keys from previous course offerings.
5. Use of unauthorized devices.
6. Submission for credit of previously completed graded work in a second course without first obtaining permission from the instructor(s) of the second course. In the case of concurrent courses, permission to submit the same work for credit in two courses must be obtained from the instructors of both courses.

**University Procedures for Dealing with Academic Integrity Violations**

Carnegie Mellon's policy on Academic Disciplinary Actions Overview for Graduate Students is the university procedure that describes procedures for disciplinary actions against graduate students in cases of alleged violations of academic regulations.

This procedure should be reviewed in its entirety on-line:

http://www.cmu.edu/academic-integrity/documents/academic-disciplinary-actions-overview-for-graduate-students.2013.pdf

In any presentation, creative, artistic or research, it is the ethical responsibility of each student to identify the conceptual sources of the work submitted. Failure to do so is dishonest and is the basis for a charge of cheating or plagiarism, which is subject to disciplinary action.

If a student fails a course because of a cheating violation and then retakes the course, both the failing grade and the new grade will be used in evaluations of academic standing and the calculation of the student's QPA.

Any student who violates the academic integrity policy may not be a Student Representative, Teaching Assistant, Officer of a student club/organization and cannot graduate from the college with highest distinction or distinction or serve as commencement speaker. Per University policy, all academic integrity violations will be reported to the Heinz College Associate Dean and Carnegie Mellon’s Dean of Student Affairs.

Cases of cheating and plagiarism will be reviewed by the Dean, who may impose additional penalties. Students should understand clearly that such offenses are not tolerated at Carnegie Mellon. A first offense could result in being dropped from your program. In the event of a second offense, you will be dropped from your program.

Generally, sanctions resulting from an Academic Disciplinary Action take effect immediately, regardless of whether an appeal is filed.
Additional requirement at Carnegie Mellon University Australia campus

All students enrolling for programs at the campus in Adelaide are required to attend one of the two sessions programmed on Academic Integrity during their Orientation Week. At the end of that session, students will be asked to sign two documents. The first is an acknowledgement that they have attended the session. The second is an acknowledgement that they have understood the information presented on both the definitions of violations of academic integrity and the consequences of those violations.

Questions regarding the graduate policies and/or procedures pertaining to cheating and plagiarism should be directed to Professor Tim O’Loughlin at 8110 9923, 0419 822 915 or toloughlin@australia.cmu.edu

Summary of practical actions

The actions students should take are:

• Make sure you understand the definitions of cheating, plagiarism and unauthorized assistance as set out in this document
• Study carefully the specific requirements of each course instructor as set out in the outline for each course. If in any doubt, raise queries with the instructor at the earliest opportunity
• Familiarise yourself with the consequences of breaches of academic integrity
• Refer any questions of the general policies referred to in this document to Professor Tim O’Loughlin, Senior Director, Academic and Institutional Development.