Module Specification

CO1105 Introduction to Object Oriented Programming

Academic Year: 2020/1
Module Level: Year 1
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Lectures</th>
<th>Seminars</th>
<th>Practical Classes &amp; Workshops</th>
<th>Tutorials</th>
<th>Fieldwork</th>
<th>Project Supervision</th>
<th>Guided Independent Study</th>
<th>Demonstration</th>
<th>Supervised time in studio/workshop</th>
<th>Work Based Learning</th>
<th>Placement</th>
<th>Year Abroad</th>
<th>Total Module Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150</td>
</tr>
<tr>
<td>Lectures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seminars</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practical Classes &amp; Workshops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutorials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fieldwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Supervision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guided Independent Study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervised time in studio/workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Based Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Abroad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Module Hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150</td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator: Karim Mualla
Mark Scheme: UG Module Mark Scheme

No. | Assessment Description | Weight % | Qual Mark | Exam Hours | Ass't Group | Alt Reass't |
--- |------------------------|----------|-----------|------------|-------------|-------------|
001 | Coursework             | 100      |           |            |            |             |
002 | Examination            | 100      |           | 2          |            | Y           |

Intended Learning Outcomes

On completion of the module, successful students should be able to:
- Define, create, and manipulate classes and objects using standard-object oriented programming concepts;
- Analyse the use of object-oriented design principles in standard design patterns;
- Explain object-oriented design principles using inheritance, abstraction, overriding and polymorphism;
- Demonstrate the use of exceptions for implementing fault recovery strategies;
- Represent object models using standard notation;
- Solve small scale computing problems that are suited to object-oriented development by designing solutions, coding them and deploying them using appropriate techniques.

Teaching and Learning Methods

Lectures, Tutorials for examples and feedback, Laboratory based Learning Support.

Assessment Methods

Coursework (100%).

Pre-Requisites

-

Co-Requisites

-

Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading, problem sets, writing module note-based summaries. Use of web-based coding tutorials/videos.
Module Specification

CO1106 Requirements Engineering and Professional Practice

Academic Year: 2020/1  
Module Level: Year 1  
Scheme: UG  
Department: Informatics  
Credits: 15

Student Workload (hours)

- Lectures 24  
- Seminars  
- Practical Classes & Workshops  
- Tutorials 16  
- Fieldwork  
- Project Supervision  
- Guided Independent Study 104  
- Demonstration  
- Supervised time in studio/workshop 6  
- Work Based Learning  
- Placement  
- Year Abroad  
- Total Module Hours 150

Period: Semester 2  
Occurrence: E  
Coordinator: Nervo Verdezoto  
Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Coursework</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Examination</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

Intended Learning Outcomes

On completion of the module, successful students should be able to:
- Motivate the need of requirements engineering for successful software projects, describe the problems when requirements are omitted;
- Explain requirements change management process;
- Differentiate between different types of requirements;
- Demonstrate a knowledge of security and data protection issues in storage and usage of data;
- Critique the value of a number of requirements engineering techniques, such as stakeholder analysis, use cases, interviews, prototyping;
- Distinguish and choose between various modelling techniques for requirements documentation;
- Describe the role of professional bodies in the IT industry.

Teaching and Learning Methods

Lectures, Tutorials for coursework examples and feedback, Laboratory based Learning Support, Group discussions.

Assessment Methods

Coursework (100%).

Pre-Requisites

-

Co-Requisites

-

Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading and videos, problem sets, writing module note-based summaries.
Module Specification

CO1107 Algorithms, Data Structures and Advanced Programming

Student Workload (hours)

<table>
<thead>
<tr>
<th>Lectures</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminars</td>
<td></td>
</tr>
<tr>
<td>Practical Classes &amp; Workshops</td>
<td></td>
</tr>
<tr>
<td>Tutorials</td>
<td>8</td>
</tr>
<tr>
<td>Fieldwork</td>
<td></td>
</tr>
<tr>
<td>Project Supervision</td>
<td></td>
</tr>
<tr>
<td>Guided Independent Study</td>
<td>102</td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
</tr>
<tr>
<td>Supervised time in studio/workshop</td>
<td>16</td>
</tr>
<tr>
<td>Work Based Learning</td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td></td>
</tr>
<tr>
<td>Year Abroad</td>
<td></td>
</tr>
<tr>
<td>Total Module Hours</td>
<td>150</td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator: Thomas Ridge
Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Coursework</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Intended Learning Outcomes

On completion of the module, successful students should be able to:
- Show how to solve simple problems involving common datatypes such as arrays, strings, lists, stacks, queues, trees, graphs;
- Describe standard algorithms such as sorting, searching, hashing, and tree and graph traversal. Work out problems which involve these algorithms;
- Write programs that use recursive programming techniques;
- Answer questions on supplementary topics such as data storage and file I/O, sockets, and threads.

Teaching and Learning Methods

Lectures, coursework, practical lab-based sessions, online resources (e.g. module webpage, electronic notes, Q+A forum, video tutorials).

Assessment Methods

Coursework (100%).

Pre-Requisites

-

Co-Requisites

-

Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading and videos, problem sets, writing note-based summaries.
Module Specification

CO1108 Foundations of Computation

Academic Year: 2020/1
Module Level: Year 1
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

- Lectures 24
- Seminars
- Practical Classes & Workshops
- Tutorials 16
- Fieldwork
- Project Supervision
- Guided Independent Study 110
- Demonstration
- Supervised time in studio/workshop
- Work Based Learning
- Placement
- Year Abroad
- Total Module Hours 150

Period: Semester 2
Occurrence: E
Coordinator: Mohammadreza Mousavi
Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Coursework</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Examination</td>
<td>60</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td>Examination</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

Intended Learning Outcomes
At the end of this module, students should be able to:
- Explain in broad terms the idea of foundations and theory in Computer Science;
- Discuss and classify grammars and formal languages; solve simple problems;
- Define and explain models of computation such as register and Turing machines, simple automata;
- Construct simple models to solve problems.

Teaching and Learning Methods
Lectures, Tutorials for coursework examples and feedback.

Assessment Methods
Coursework (20%) and final examination (80%).

Pre-Requisites
-

Co-Requisites
-

Excluded Combinations
-

Guided Independent Study: Indicative Activities
Directed reading and videos, problem sets, writing module note-based summaries.
Module Specification

CO1109  Business and Financial Computing

Academic Year: 2020/1
Module Level: Year 1
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Seminars</th>
<th>Practical Classes &amp; Workshops</th>
<th>Tutorials</th>
<th>Fieldwork</th>
<th>Project Supervision</th>
<th>Guided Independent Study 110</th>
<th>Demonstration</th>
<th>Supervised time in studio/workshop</th>
<th>Work Based Learning</th>
<th>Placement</th>
<th>Year Abroad</th>
<th>Total Module Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150</td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator:

Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Coursework</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Examination</td>
<td>60</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td>Examination</td>
<td>100</td>
<td></td>
<td>2</td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

Intended Learning Outcomes
On completion of this module, successful students should be able to:
- Explain some of the fundamental concepts, terminology and processes of the business/financial domain;
- Explain the categories and functions of business and information systems and applications and solve simple problems;
- Outline the functional and architectural properties of these systems;
- Explain the different roles and functions of IT professionals within organisations.

Teaching and Learning Methods
Lectures, Tutorials for coursework examples and feedback.

Assessment Methods
Coursework and Examination.

Pre-Requisites
-

Co-Requisites
-

Excluded Combinations
-

Guided Independent Study: Indicative Activities
Directed reading and videos, problem sets, writing module note-based summaries.
Module Specification

CO2104 User Interface Design and Evaluation

Academic Year: 2020/1
Module Level: Year 2
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>20</td>
</tr>
<tr>
<td>Seminars</td>
<td></td>
</tr>
<tr>
<td>Practical Classes &amp; Workshops</td>
<td></td>
</tr>
<tr>
<td>Tutorials</td>
<td>10</td>
</tr>
<tr>
<td>Fieldwork</td>
<td></td>
</tr>
<tr>
<td>Project Supervision</td>
<td></td>
</tr>
<tr>
<td>Guided Independent Study</td>
<td>100</td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
</tr>
<tr>
<td>Supervised time in studio/workshop</td>
<td>20</td>
</tr>
<tr>
<td>Work Based Learning</td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td></td>
</tr>
<tr>
<td>Year Abroad</td>
<td></td>
</tr>
</tbody>
</table>
| Guided Independent Study: Indicative Activities

Guided Independent Study: Indicative Activities
Directed reading and videos, problem sets, writing module note-based summaries. Use of web-based coding tutorials/videos.
**Module Specification**

**CO2106 Data Analytics**

**Academic Year:** 2020/1  
**Module Level:** Year 2  
**Scheme:** UG  
**Department:** Informatics  
**Credits:** 15

### Student Workload (hours)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Lectures</th>
<th>Seminars</th>
<th>Practical Classes &amp; Workshops</th>
<th>Tutorials</th>
<th>Fieldwork</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Guided Independent Study</strong></td>
<td>20</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>Demonstration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td><strong>Practical time in studio/workshop</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Work Based Learning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Placement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year Abroad</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Module Hours</strong></td>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Period:** Semester 2  
**Occurrence:** E  
**Coordinator:** Emmanuel Tadjouddine  
**Mark Scheme:** UG Module Mark Scheme

### Intended Learning Outcomes
On completion of the module, successful students should be able to:
- Collect, preprocess, and visualise data;
- Calculate basic probabilities and apply statistical tests to datasets;
- Analyse datasets to derive insights;
- Build-up a data-driven recommender system;
- Build-up and evaluate basic supervised learning models;
- Explain data ethics, privacy, and security.

### Teaching and Learning Methods
Lectures, notes, supervised laboratory work, tutorials, coursework, model answers, handouts.

### Assessment Methods
Coursework (40%) and final examination (60%).

### Pre-Requisites
- 

### Co-Requisites
- 

### Excluded Combinations
- 

### Guided Independent Study: Indicative Activities
Lectures, notes, textbooks, laboratory work, coursework, model answers, handouts, online support (eg videos, Q+A forum, webpages etc).
CO2107 Functional Programming

Academic Year: 2020/1
Module Level: Year 2
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Lectures</th>
<th>Seminars</th>
<th>Practical Classes &amp; Workshops</th>
<th>Tutorials</th>
<th>Fieldwork</th>
<th>Project Supervision</th>
<th>Guided Independent Study</th>
<th>Demonstration</th>
<th>Supervised time in studio/workshop</th>
<th>Work Based Learning</th>
<th>Placement</th>
<th>Year Abroad</th>
<th>Total Module Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>20</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20 24</td>
</tr>
<tr>
<td>Seminars</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20 24</td>
</tr>
<tr>
<td>Practical Classes &amp; Workshops</td>
<td>20</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20 16</td>
</tr>
<tr>
<td>Tutorials</td>
<td>10</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 8</td>
</tr>
<tr>
<td>Fieldwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 8</td>
</tr>
<tr>
<td>Project Supervision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guided Independent Study</td>
<td>100</td>
<td>102</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100 102</td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervised time in studio/workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Based Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Abroad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Module Hours</td>
<td>150</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150 150</td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator: Fer-Jan de Vries
Mark Scheme: UG Module Mark Scheme

No. Assessment Description | Weight % | Qual Mark | Exam Hours | Ass't Group | Alt Reass't |
---|---|---|---|---|---|
001 Coursework | 40 | | | | |
002 Examination (final) | 60 | | 2 | | Y |
003 Examination | 100 | | 2 | | |

Period: Semester 2
Occurrence: E2
Coordinator: Fer-Jan de Vries
Mark Scheme: UG Module Mark Scheme

No. Assessment Description | Weight % | Qual Mark | Exam Hours | Ass't Group | Alt Reass't |
---|---|---|---|---|---|
001 Coursework | 100 | | | | |

Intended Learning Outcomes

On completion of the module, successful students should be able to:
- Demonstrate skilled use of basic functions and techniques to solve simple problems;
- Explain in detail definitions of numbers, lists, recursion, and patterns;
- Explain higher order functions and mechanisms for defining new datatypes;
- Solve simple and complex programming problems using functional programming;
- Demonstrate skilled use of functional programming in mainstream programming languages for developing web applications.

Teaching and Learning Methods

Lectures, Tutorials for coursework examples and feedback, Laboratory based Learning Support.

Assessment Methods

Coursework (40%), Exam (60%)

Pre-Requisites

-

Co-Requisites

-

Excluded Combinations

-

Guided Independent Study: Indicative Activities

Directed reading and videos, problem sets, writing module note-based summaries. Use of web-based coding tutorials/videos.
Module Specification

CO2114  Foundations of Artificial Intelligence

Academic Year: 2020/1
Module Level: Year 2
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)
- Lectures: 20
- Seminars
- Practical Classes & Workshops
- Tutorials: 10
- Fieldwork
- Project Supervision
- Guided Independent Study: 100
- Demonstration
- Supervised time in studio/workshop: 20
- Work Based Learning
- Placement
- Year Abroad
- Total Module Hours: 150

Period: Semester 2
Occurrence: E
Coordinator: Mohammadreza Mousavi

Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Examination (Final)</td>
<td>50</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Coursework</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td>Examination</td>
<td>100</td>
<td></td>
<td>2</td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

Intended Learning Outcomes
On completion of the module, successful students should be able to:
- Translate an AI problem to a specification of the agent's task environment;
- Provide a precise problem formulation for a problem-solving agent;
- Explain and discuss different algorithms for uninformed search, and identify the most suitable approach for a given problem;
- Explain and discuss different algorithms for informed search, explain the effect of heuristics on performance, demonstrate familiarity with methods for constructing good heuristics;
- Formulate optimisation problems for AI agents, and be able to apply an array of out-of-the-box methods and tools for solving optimisation problems;
- Identify the appropriate type of environment for a given problem, and the corresponding methods for solving search problems within this environment;
- Implement and apply AI techniques to typical application domains such as video games and robotics.

Teaching and Learning Methods
Lectures, lecture notes, recommended textbooks, supervised laboratories, hands-on experience programming robots, robot contest with results from mini-project.

Assessment Methods
Coursework and Examination.

Pre-Requisites
-

Co-Requisites
-

Excluded Combinations
-

Guided Independent Study: Indicative Activities
Directed reading, use of web-based tutorials.
Module Specification

CO3002  Analysis and Design of Algorithms

Academic Year:  2020/1
Module Level:  Year 3
Scheme:  UG
Department:  Informatics
Credits:  15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>22</td>
</tr>
<tr>
<td>Seminars</td>
<td></td>
</tr>
<tr>
<td>Practical Classes &amp; Workshops</td>
<td></td>
</tr>
<tr>
<td>Tutorials</td>
<td>22</td>
</tr>
<tr>
<td>Fieldwork</td>
<td></td>
</tr>
<tr>
<td>Project Supervision</td>
<td></td>
</tr>
<tr>
<td>Guided Independent Study</td>
<td>106</td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
</tr>
<tr>
<td>Supervised time in studio/workshop</td>
<td></td>
</tr>
<tr>
<td>Work Based Learning</td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td></td>
</tr>
<tr>
<td>Year Abroad</td>
<td></td>
</tr>
<tr>
<td>Total Module Hours</td>
<td>150</td>
</tr>
</tbody>
</table>

Period:  Semester 2
Occurrence:  E
Coordinator:  Stanley Fung
Mark Scheme:  UG Module Mark Scheme

Intended Learning Outcomes
On completion of the module, successful students should be able to:
- Analyse and evaluate the efficiency of algorithms in terms of asymptotic complexity;
- Demonstrate a number of standard algorithms for problems in fundamental areas in computer science and engineering such as sorting, searching, and problems involving graphs;
- Apply a number of standard algorithm design techniques to design efficient algorithms for new problems;
- Produce concise technical writing for describing the solutions and arguing for their correctness.

Teaching and Learning Methods
Class sessions together with lecture notes, lecture slides, recommended textbooks, worksheets, printed solutions, and web support.

Assessment Methods
Coursework (40%) and exam (60%).

Pre-Requisites

Co-Requisites

Excluded Combinations

Guided Independent Study: Indicative Activities
Guided reading and other information sources.
Module Specification

CO3093 Big Data and Predictive Analytics

Academic Year: 2020/1
Module Level: Year 3
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Lectures</th>
<th>Seminars</th>
<th>Practical Classes &amp; Workshops</th>
<th>Tutorials</th>
<th>Fieldwork</th>
<th>Project Supervision</th>
<th>Guided Independent Study</th>
<th>Demonstration</th>
<th>Supervised time in studio/workshop</th>
<th>Work Based Learning</th>
<th>Placement</th>
<th>Year Abroad</th>
<th>Total Module Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150</td>
</tr>
<tr>
<td>Seminars</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practical Classes &amp; Workshops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutorials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fieldwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Supervision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guided Independent Study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervised time in studio/workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Based Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Abroad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Module Hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150</td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator: Emmanuel Tadjoudine
Mark Scheme: UG Module Mark Scheme

No. | Assessment Description | Weight % | Qual Mark | Exam Hours | Ass't Group | Alt Reass't
--- | ----------------------- | --------- | --------- | ---------- | ----------- | ------------
001 | Examination (final)    | 40        | 2         |            |            |             
002 | Coursework             | 60        |           |            |            |             

Intended Learning Outcomes
On successful completion of the module, students should be able to:
- Analyse possibly large amount of data;
- Develop and back-test a predictive model;
- Compare and contrast different types of predictive models;
- Evaluate a predictive model;
- Use a Map-Reduce approach in processing data;
- Write a report on the data analysis carried out.

Teaching and Learning Methods
Lectures, Notes, Tutorials for coursework examples and feedback, Laboratory based Learning Support.

Assessment Methods
Marked coursework and written examination.

Pre-Requisites
- 

Co-Requisites
- 

Excluded Combinations
- 

Guided Independent Study: Indicative Activities
Directed reading and videos, problem sets, writing module note-based summaries. Use of web-based coding tutorials/videos.
Module Specification

CO3096 Compression Methods for Multimedia

Academic Year: 2020/1
Module Level: Year 3
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)
- Lectures: 24
- Seminars
- Practical Classes & Workshops
- Tutorials: 16
- Fieldwork
- Project Supervision
- Guided Independent Study: 110
- Demonstration
- Supervised time in studio/workshop
- Work Based Learning
- Placement
- Year Abroad
- Total Module Hours: 150

Period: Semester 2
Occurrence: E
Coordinator: Rajeev Raman
Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Examination (Final)</td>
<td>50</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Coursework- re-assessment by exam</td>
<td>50</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Intended Learning Outcomes
On completion of the module, successful students will be able to:
- Explain knowledge of compression techniques as well as the mathematical foundations of data compression
- Explain knowledge about existing compression standards or commonly-used compression utilities
- Discuss and explain the ubiquity and importance of compression technologies in today's environment. Explain the need for modelling data and the underlying issues
- Describe various models of data. Explain the basic data compression algorithms and solve problems.
- Show how these algorithms work on a particular input, and implement them. Compare their efficiency in terms of speed and compression ratio

Teaching and Learning Methods
Class sessions together with lecture slides; recommended book chapters, articles and research papers; web resources; worksheets. Assessed coursework, class tests, traditional written problem-based examination.

Assessment Methods
Coursework and exam.

Pre-Requisites

Co-Requisites

Excluded Combinations

Guided Independent Study: Indicative Activities
Directed reading and videos, problem sets, writing module note-based summaries.
Module Specification

CO3099 Foundations of Cybersecurity

Academic Year: 2020/1
Module Level: Year 3
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Lectures</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminars</td>
<td></td>
</tr>
<tr>
<td>Practical Classes &amp; Workshops</td>
<td></td>
</tr>
<tr>
<td>Tutorials</td>
<td>11</td>
</tr>
<tr>
<td>Fieldwork</td>
<td></td>
</tr>
<tr>
<td>Project Supervision</td>
<td></td>
</tr>
<tr>
<td>Guided Independent Study</td>
<td>106</td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
</tr>
<tr>
<td>Supervised time in studio/workshop</td>
<td>11</td>
</tr>
<tr>
<td>Work Based Learning</td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td></td>
</tr>
<tr>
<td>Year Abroad</td>
<td></td>
</tr>
<tr>
<td>Total Module Hours</td>
<td>150</td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator: Stanley Fung
Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Examination (Final)</td>
<td>60</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Coursework</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Intended Learning Outcomes
On completion of the module, successful students will be able to:
- Describe the working principles of modern cryptosystems including public key cryptography;
- Design and implement secure network applications using standard cryptographic libraries;
- Describe the fundamental principles of security and be able to identify the needed design principle;
- Explain the importance of security requirements in system design;
- Explain the concepts of authentication and authorization, and discuss and compare commonly used methods for each of them:
  - Identify common attack vectors, and implementation issues that can result in potential security problems;
  - Be able to identify and prevent common client- and server-side attacks in web applications;
  - Describe the concepts of privacy and anonymity, and be able to apply mechanisms for achieving database privacy;
  - Demonstrate familiarity with secure communication protocols (such as, for example, TLS) and some attacks on them.

Teaching and Learning Methods
Class sessions together with lecture slides, recommended textbooks, worksheets, printed solutions, and web support.

Assessment Methods
Marked coursework, traditional written examination.

Pre-Requisites
-

Co-Requisites
-

Excluded Combinations
-

Guided Independent Study: Indicative Activities
Guided reading and other information sources.
Module Specification

CO3103 Technology Management

Academic Year: 2020/1
Module Level: Year 3
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Lectures</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminars</td>
<td></td>
</tr>
<tr>
<td>Practical Classes &amp; Workshops</td>
<td></td>
</tr>
<tr>
<td>Tutorials</td>
<td>22</td>
</tr>
<tr>
<td>Fieldwork</td>
<td></td>
</tr>
<tr>
<td>Project Supervision</td>
<td></td>
</tr>
<tr>
<td>Guided Independent Study 106</td>
<td></td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
</tr>
<tr>
<td>Supervised time in studio/workshop</td>
<td></td>
</tr>
<tr>
<td>Work Based Learning</td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td></td>
</tr>
<tr>
<td>Year Abroad</td>
<td></td>
</tr>
<tr>
<td>Total Module Hours 150</td>
<td></td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator: Karim Mualla
Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Coursework</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Coursework</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td>Examination</td>
<td>100</td>
<td>2</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

Intended Learning Outcomes
On completion of the module, successful students will be able to:
- Define the Innovation Management Process across the fast-evolving ICT industry;
- Undertake a classification of enterprise innovation studies, and describe and analyse models of the innovation process;
- Demonstrate state-of-the-art techniques of ICT product development;
- Formulate strategies, teams, and illustrate the power of product concept;
- Define Networked Organisations and explore dissimilar innovative procedures and complex decision-making strategies to facilitate innovation;
- Create and manage novel ICT product ideas, and hybrid management techniques.

Teaching and Learning Methods
Lectures, Seminars for coursework examples and feedback.

Assessment Methods
Coursework and exam.

Pre-Requisites
-

Co-Requisites
-

Excluded Combinations
-

Guided Independent Study: Indicative Activities
Directed reading and videos, problem case-studies, writing module note-based summaries.
CO3207 Generative Development

Academic Year: 2020/1
Module Level: Year 3
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)
- Lectures: 20
- Seminars
- Practical Classes & Workshops
- Tutorials: 10
- Fieldwork
- Project Supervision
- Guided Independent Study: 104
- Demonstration
- Supervised time in studio/workshop: 16
- Work Based Learning
- Placement
- Year Abroad
- Total Module Hours: 150

Period: Semester 2
Occurrence: E
Coordinator: Jan Oliver Ringert
Mark Scheme: UG Module Mark Scheme

No. Assessment Description Weight % Qual Mark Exam Hours Ass't Group Alt Reass't
001 Coursework 100

Intended Learning Outcomes
On completion of the module, successful students should be able to:
- Demonstrate knowledge of the main approaches for model-based software development;
- Critically evaluate the role of modelling and code generation in software development;
- Use modelling languages for designing views of software systems;
- Check the consistency of the models of an application;
- Use techniques of generative software development;
- Explain concepts of software product line development and apply them.

Teaching and Learning Methods
Class sessions together with lecture slides, recommended textbooks, worksheets, online solutions, and web support.

Assessment Methods
Coursework.

Pre-Requisites
-

Co-Requisites
-

Excluded Combinations
-

Guided Independent Study: Indicative Activities
Guided reading and other information sources.
Module Specification

CO4200 Algorithms for Bioinformatics

Student Workload (hours)

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>24</td>
</tr>
<tr>
<td>Seminars</td>
<td></td>
</tr>
<tr>
<td>Practical Classes &amp; Workshops</td>
<td></td>
</tr>
<tr>
<td>Tutorials</td>
<td>16</td>
</tr>
<tr>
<td>Fieldwork</td>
<td></td>
</tr>
<tr>
<td>Project Supervision</td>
<td></td>
</tr>
<tr>
<td>Guided Independent Study 110</td>
<td></td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
</tr>
<tr>
<td>Supervised time in studio/workshop</td>
<td></td>
</tr>
<tr>
<td>Work Based Learning</td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td></td>
</tr>
<tr>
<td>Year Abroad</td>
<td></td>
</tr>
<tr>
<td>Total Module Hours</td>
<td>150</td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator: Thomas Erlebach

Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Examination (Final)</td>
<td>60</td>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Coursework</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E2
Coordinator: Thomas Erlebach

Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>003</td>
<td>Coursework (Final)</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Intended Learning Outcomes

On completion of the module, successful students should be able to:
- Describe a number of computational problems arising in bioinformatics;
- State and discuss algorithmic approaches to the solution of such problems;
- Discuss and apply probabilistic models underlying computational tasks in bioinformatics;
- Design and implement efficient algorithms;
- Apply modelling and algorithm design techniques to the solution of bioinformatics problems.

Teaching and Learning Methods

Class sessions together with course notes, recommended textbooks, worksheets, and some additional hand-outs and web support.

Assessment Methods

Marked problem-based worksheets and programming assignments, traditional written problem-based examination.

Pre-Requisites

-

Co-Requisites

-

Excluded Combinations

-

Guided Independent Study: Indicative Activities

Lecture recordings, screencasts, guided reading lists.
Module Specification

CO4207 Generative Development

Academic Year: 2020/1
Module Level: Year 4
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Lectures</th>
<th>Seminars</th>
<th>Practical Classes &amp; Workshops</th>
<th>Tutorials</th>
<th>Fieldwork</th>
<th>Project Supervision</th>
<th>Guided Independent Study</th>
<th>Demonstration</th>
<th>Supervised time in studio/workshop</th>
<th>Work Based Learning</th>
<th>Placement</th>
<th>Year Abroad</th>
<th>Total Module Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150</td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator: Jan Oliver Ringert
Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>003</td>
<td>Coursework (Final)</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Intended Learning Outcomes

On completion of the module, successful students should be able to:
- Demonstrate knowledge of the main approaches for model-based software development;
- Critically evaluate the role of modelling and code generation in software development;
- Use modelling languages for designing views of software systems;
- Check the consistency of the models of an application;
- Use techniques for generative software development;
- Explain concepts of software product line development and apply them.

Teaching and Learning Methods

Lectures, problem classes, laboratory sessions, recommended textbooks, worksheets, programming exercises, web support.

Assessment Methods

Individual and group coursework assignments, in-class tests. Re-assessment via traditional written examination.

Pre-Requisites

Desirable: UML, Java, Eclipse

Co-Requisites

-

Excluded Combinations

-

Guided Independent Study: Indicative Activities

Lecture recordings, screencasts, guided reading lists.
Module Specification

CO4210  Personal and Group Skills

Academic Year: 2020/1
Module Level: Year 4
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Seminars</th>
<th>Practical Classes &amp; Workshops</th>
<th>Tutorials</th>
<th>Fieldwork</th>
<th>Project Supervision</th>
<th>Guided Independent Study</th>
<th>Demonstrations</th>
<th>Supervised time in studio/workshop</th>
<th>Work Based Learning</th>
<th>Placement</th>
<th>Year Abroad</th>
<th>Total Module Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150</td>
</tr>
</tbody>
</table>

Period: Semester 1
Occurrence: E
Coordinator: Thomas Erlebach

Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Coursework (Final)</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator: Thomas Erlebach

Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Coursework (Final)</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Intended Learning Outcomes

On completion of the module, successful students should be able to:
- Locate, organise and marshal evidence, report on findings, analyse complex ideas and construct sophisticated critical arguments;
- Demonstrate knowledge of how and when to draw on the knowledge and expertise of others;
- Contribute and comment on ideas in syndicate groups;
- Reflect on and write up results;
- Plan and present research clearly and effectively using appropriate IT resources;
- Deliver oral presentations to professional standard;
- Respond to questioning;
- Write cogently and clearly.

Teaching and Learning Methods

Seminars by guest speakers, handouts and recommended texts, moderated group discussions, oral presentation, collective writing, workshops on transferrable skills.

Assessment Methods

Moderated group discussions, 4,000 word collective essay, 10 minute oral presentation. The coursework on this module cannot be re-sat.

Pre-Requisites

- 

Co-Requisites

- 

Excluded Combinations

-
Module Specification

CO4210    Personal and Group Skills

Guided Independent Study: Indicative Activities
Guided reading, workshop recordings, group discussions, literature search, essay writing, presentation preparation.
Module Specification

CO4214 Service-Oriented Architectures

Academic Year: 2020/1
Module Level: Year 4
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

| Lectures | 24 |
| Seminars | 8  |
| Practical Classes & Workshops |
| Tutorials | 8  |
| Fieldwork |
| Project Supervision |
| Guided Independent Study | 110 |
| Demonstration |
| Supervised time in studio/workshop |
| Work Based Learning |
| Placement |
| Year Abroad |
| Total Module Hours | 150 |

Period: Semester 2
Occurrence: E
Coordinator: Reiko Heckel
Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Examination (Final)</td>
<td>60</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>Coursework- re-assessed by exam</td>
<td>40</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E2
Coordinator: Reiko Heckel
Mark Scheme: UG Module Mark Scheme

<table>
<thead>
<tr>
<th>No.</th>
<th>Assessment Description</th>
<th>Weight %</th>
<th>Qual Mark</th>
<th>Exam Hours</th>
<th>Ass't Group</th>
<th>Alt Reass't</th>
</tr>
</thead>
<tbody>
<tr>
<td>003</td>
<td>Coursework (Final)</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Intended Learning Outcomes

On completion of the module, successful students should be able to:
- Demonstrate familiarity with the conceptual and technological foundations of Service-Oriented Architectures (SOA), i.e. the motivation, basic mechanisms, and open problems of SOA;
- Be able to design service-oriented systems and express these designs in appropriate modelling notations based on object-oriented and component-based concepts;
- Understand the relationship between high-level models and their implementation-level languages and technologies such as XML, WSDL and SOAP as well as JSON and REST;
- Be able to exercise this relationship by mappings in both directions in simple examples;
- Understand the use of model-based testing of services; be able to generate test cases and assess test results based on models.

Teaching and Learning Methods

Lectures, surgeries and lab classes; lecture and surgery recordings; course notes, lab and surgery assignments; recommended textbooks and online materials.

Assessment Methods

Marked coursework based on theoretical and lab-based problem solving task, class or lab tests, written examination.

Pre-Requisites

Desirable: UML, XML, Java.

Co-Requisites

-

Excluded Combinations

-
Module Specification

CO4214 Service-Oriented Architectures

Guided Independent Study: Indicative Activities
Module Specification

CO4218 Financial Services Information Systems

Academic Year: 2020/1
Module Level: Year 4
Scheme: UG
Department: Informatics
Credits: 15

Student Workload (hours)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>25</td>
</tr>
<tr>
<td>Seminars</td>
<td>8</td>
</tr>
<tr>
<td>Practical Classes &amp; Workshops</td>
<td></td>
</tr>
<tr>
<td>Tutorials</td>
<td></td>
</tr>
<tr>
<td>Fieldwork</td>
<td></td>
</tr>
<tr>
<td>Project Supervision</td>
<td></td>
</tr>
<tr>
<td>Guided Independent Study</td>
<td>117</td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
</tr>
<tr>
<td>Supervised time in studio/workshop</td>
<td></td>
</tr>
<tr>
<td>Work Based Learning</td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td></td>
</tr>
<tr>
<td>Year Abroad</td>
<td></td>
</tr>
<tr>
<td>Total Module Hours</td>
<td>150</td>
</tr>
</tbody>
</table>

Period: Semester 2
Occurrence: E
Coordinator: Mark Scheme: UG Module Mark Scheme

No. Assessment Description Weight % Qual Mark Exam Hours Ass't Group Alt Reass't
001 Examination (Final) 60 2
002 Coursework 40

Period: Semester 2
Occurrence: E2
Coordinator: Mark Scheme: UG Module Mark Scheme

No. Assessment Description Weight % Qual Mark Exam Hours Ass't Group Alt Reass't
003 Coursework (Final) 100

Intended Learning Outcomes
On completion of the module, successful students should be able to:
- Demonstrate understanding of some of the fundamental concepts and terminology of the Financial Services domain;
- Demonstrate awareness of the key organisational units and their respective functions in Financial Services organisations;
- Differentiate categories of financial systems and applications and discuss their characteristics and their relationships from different perspectives, namely business, functional, architectural and technological;
- Demonstrate understanding of the role and key functions of the IT departments within Financial Services and awareness of the issues and challenges that they currently face.

Teaching and Learning Methods
Lectures, tutorials and practical sessions together with course notes, recommended reading, worksheets and some additional handouts.

Assessment Methods
Assessed coursework; traditional written exam.

Pre-Requisites
-

Co-Requisites
-

Excluded Combinations
-

Guided Independent Study: Indicative Activities