BUSINESS COMPUTING
1. **Welcome and Introduction**

**Welcome!**

Dear Student,

This Handbook is intended to provide a concise reference and guide for all ACT students. Included herein are brief statements of College policies applicable to and of interest to all College constituencies.

This guide is intended to address some of the common academic and student life questions and concerns that are likely to arise during your years at ACT. Its purpose is not merely to lay out the policies of academic life, but also to point out ways of thinking about your education. Planning carefully and looking ahead will enable you to maximize your opportunities at the College. Knowing when and where to find guidance and counsel is important in ensuring that your educational choices are well considered and make sense in the context of your larger academic goals.

We do assume, however, that you will seek out the help you need. This guide has been designed to help you do just that. Please read it, keep it, and use it as a reference throughout your academic career.

Other channels of communication at ACT are provided by:
- Viewbook/Catalogue of Study (annual publication consisting of the analytical programs of study, course offerings and course descriptions)
- The Student Bulletin (weekly during the semester)

Furthermore, all students who have an e-mail account should provide this information to the Registrar’s Office upon registration for classes. Through electronic communication, additional information regarding events/activities is forwarded to students via their e-mail accounts.

With best regards,

Dr. Stamos Karamouzis

ACT Provost
A. BRIEF INTRODUCTION TO ACT

The American College of Thessaloniki (ACT, founded in 1981 as two-year, Associate-degree granting institution) is the tertiary-level division of Anatolia, a private, non-profit educational institution founded in 1886. It is incorporated in, and chartered by the Commonwealth of Massachusetts, and it is fully accredited by the New England Association of Schools and Colleges (NEASC) through its Commission on Institutes of Higher Education. In inspiration, mission, governance, and programs, ACT resembles the traditional New England colleges upon which it has been modeled.

Founded by American Protestant missionaries, Anatolia was originally located in Asia Minor and evolved from a seminary in Constantinople, which began in 1840. The school was closed during the Greek-Turkish War of 1919-1922 and ceased to have a viable mission in Asia Minor when Turkey’s minority communities were uprooted under the peace treaties concluding the war. In 1924, Anatolia relocated to Thessaloniki, where the greatest part of the refugee influx from Asia Minor had settled. In the mid-1930s, the school moved to its present location on a forty-five acre campus a few miles from the center of the city.

ACT moved to a four-year college in 1989 and currently offers Bachelor’s degrees in the areas of Business, Information Technology and International Relations. Since 2002, ACT also established a graduate program in Business (MBA) with concentrations in key disciplines such as Marketing, Management, Entrepreneurship, and Banking & Finance. The MBA program is designed to accommodate both business graduates as well as graduates from other disciplines and can be completed on full-time or part-time basis within one or two years. In 2008, it launched a joint Executive MBA Program with ALBA, the pre-eminent Athenian graduate business program. Starting with the entering class of Fall 2008 three of ACT’s undergraduate degree programs (Business, International Relations and Business & Computing) were validated by the University of Wales. In September 2013, ACT entered a new validation agreement with the British Open University.

In recent years, ACT has received grants from a number of foundations, notably among which are the Anagnos Foundation, the Andrew Mellon Foundation, the Cleveland H. Dodge Foundation, the N. Demos Foundation, the Minneapolis Foundation, the Pappas Foundation, (US), the J. F. Costopoulos Foundation, and the Stavros S. Niarchos Foundation (Greece). These grants, contributions by many individual donors in Greece and in the US, and most particularly the extraordinary contributions of Mr. George Bissell, Chair of the Board of Trustees, have made possible the creation of a world-class campus and of the Bissell Library, a state of the art facility unique in SE Europe.
# Academic Calendar (Including Term and Assessment Dates)

## Undergraduate Degree Programs 2018-2019

### Fall 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Event/Note</th>
</tr>
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<tbody>
<tr>
<td>September 17 (M)</td>
<td>Study Abroad Housing Opens / On-campus Housing Opens</td>
</tr>
<tr>
<td>September 19-21 (W-F)</td>
<td>Resit Exams for Spring I, Spring II and Summer Terms</td>
</tr>
<tr>
<td>September 21 (M)</td>
<td>New Student Orientation / Study Abroad Orientation / Registration</td>
</tr>
<tr>
<td>September 22 (W)</td>
<td>First Day of Classes</td>
</tr>
<tr>
<td>September 28 (F)</td>
<td>Last Day for Course Changes</td>
</tr>
<tr>
<td>October 25-26 (Th-F)</td>
<td>Fall Break</td>
</tr>
<tr>
<td>November 2 (F)</td>
<td>Last Day to Drop a Course</td>
</tr>
<tr>
<td>December 7 (F)</td>
<td>Last day of classes</td>
</tr>
<tr>
<td>December 10-18 (M-Tu)</td>
<td>Final Exams for all courses*</td>
</tr>
<tr>
<td>December 16 (S)</td>
<td>Study Abroad Housing Closes</td>
</tr>
</tbody>
</table>

*Note: All Study Abroad Students will take their Final Exams during the first week of the Exam period (Monday Dec 10 – Friday Dec 14)

### Spring I 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Event/Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 5 (Sat)</td>
<td>Study Abroad Housing Opens</td>
</tr>
<tr>
<td>January 7-8 (M-Tu)</td>
<td>New Student Orientation / Study Abroad Orientation / Registration</td>
</tr>
<tr>
<td>January 9 (W)</td>
<td>First Day of Classes</td>
</tr>
<tr>
<td>January 31 (W)</td>
<td>Last Day for Course Changes</td>
</tr>
<tr>
<td>January 30 (W)</td>
<td>Hierarch’s Day, No Classes</td>
</tr>
<tr>
<td>February 4-7 (M-Th)</td>
<td>OU Exam Board</td>
</tr>
<tr>
<td>February 14-15 (Th-F)</td>
<td>Fall Re-sit Exams, No Classes</td>
</tr>
<tr>
<td>February 19 (Tu)</td>
<td>Last Day to Drop a Course</td>
</tr>
<tr>
<td>March 11 (M)</td>
<td>Shrove Monday (Kathara Deftera), No Classes</td>
</tr>
<tr>
<td>March 25 (M)</td>
<td>Independence Day, No Classes</td>
</tr>
<tr>
<td>March 27 (W)</td>
<td>Last Day of Classes</td>
</tr>
<tr>
<td>March 28 (Th)</td>
<td>Reading Day</td>
</tr>
<tr>
<td>March 29-April 5 (F-F)</td>
<td>Final Exams for all courses</td>
</tr>
<tr>
<td>April 7 (Sun)</td>
<td>Study Abroad Housing Closes</td>
</tr>
</tbody>
</table>

### Spring II 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Event/Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 8 (M)</td>
<td>Study Abroad Housing Opens</td>
</tr>
<tr>
<td>April 10 (W)</td>
<td>First Day of Classes</td>
</tr>
<tr>
<td>April 15 (M)</td>
<td>Last Day for Course Changes</td>
</tr>
<tr>
<td>April 19 (F)</td>
<td>Last Day of Classes before Easter Break</td>
</tr>
<tr>
<td>May 6 (M)</td>
<td>Classes resume</td>
</tr>
<tr>
<td>May 17 (F)</td>
<td>Last Day for Course Changes</td>
</tr>
<tr>
<td>June 11 (Tu)</td>
<td>Last Day of Classes</td>
</tr>
<tr>
<td>June 12 (W)</td>
<td>Reading Day</td>
</tr>
<tr>
<td>June 13-14 (Th-F)</td>
<td>Final Exams for all courses</td>
</tr>
<tr>
<td>June 15 (Sat)</td>
<td>Study Abroad Housing Closes</td>
</tr>
</tbody>
</table>

### Summer 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Event/Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 16 (Sun)</td>
<td>Study Abroad Housing Opens</td>
</tr>
<tr>
<td>June 18 (Tu)</td>
<td>Study Abroad Orientation</td>
</tr>
<tr>
<td>June 19 (W)</td>
<td>First Day of Classes</td>
</tr>
<tr>
<td>June 20 (Th)</td>
<td>Last Day for Course Changes</td>
</tr>
<tr>
<td>June 24-27 (M-Th)</td>
<td>OU Exam Board</td>
</tr>
<tr>
<td>June 28 (F)</td>
<td>Last Day to Drop a Course</td>
</tr>
<tr>
<td>July 2 (Tu - tentative)</td>
<td>Commencement</td>
</tr>
<tr>
<td>July 17 (W)</td>
<td>Last Day of Classes</td>
</tr>
<tr>
<td>July 18 (Th)</td>
<td>Reading Day</td>
</tr>
<tr>
<td>July 19 (F)</td>
<td>Final Examinations</td>
</tr>
<tr>
<td>July 22 (M)</td>
<td>Study Abroad Housing Closes</td>
</tr>
</tbody>
</table>
2. **LIST OF PROGRAMME DIRECTOR AND ACADEMIC STAFF**

**CHAIR**

**Mr. Emmanuel Maou**  
Associate Professor (Mathematics) (Reg)  
BA Mathematics, Iowa Wesleyan College, IA, USA;  
MS Applied Mathematics, University of Iowa, IA, USA;  
Further studies at the Ph.D. level in Applied Mathematics and Higher Education, University of Iowa, IA, USA.  
Tel.: +30-2310-398 380; Email: emaou@act.edu

**ACADEMIC STAFF (ALPHABETICAL ORDER)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Qualifications</th>
<th>Position</th>
</tr>
</thead>
</table>
| 1   | Ampatzoglou, Apostolos| BSc in Computer Science, Technological Education Institute of Thessaloniki, Department of Informatics, Greece;  
MSc in Computer Systems, University of Macedonia, Department of Applied Informatics, Greece;  
PhD in Software Engineering (“The Effect of Object-Oriented Design Patterns on Software Quality”), Aristotle University, Greece | Adjunct Professor, Computer Science |
| 2   | Astaras, Alexandros   | B.A. in Physics, Oberlin College, Ohio, USA;  
PhD in Electronics Engineering, University of Edinburgh, Edinburgh, Scotland, UK | Regular Assistant Professor        |
| 3   | Baglavas, Grigoris    | B.Sc. in Mathematics from the Aristotle University of Thessaloniki, Greece;  
M.Sc. in Computer Networks from the University of Sheffield (UK);  
Ph.D. in Network Scheduling Algorithms from the University of Macedonia, Greece. | Regular Assistant Professor, Computer Science |
| 4   | Christodoulou, Chris  | B.Sc. in Physics from Aristotle University of Thessaloniki, Thessaloniki, Greece;  
M.Sc. in Information Technology University of Aston in Birmingham, Birmingham, U.K.;  
Completed 35 Professional Training Seminars from I.T. companies such as I.B.M. Hellas, Infolabs Greece and others | Adjunct Instructor, Computer Science |
| 5   | Karagiannis, Kostas   | BA Mathematics, National and Kapodistrian University of Athens;  
MSc Mathematics, University of Warwick;  
PhD Candidate, Mathematics, Aristotle University of Thessaloniki | Regular Instructor, Mathematics    |
| 6   | Karamichalis, Menelaos| BA in Physics, Berea College, Berea, KY, USA;  
BS in Electrical Engineering, Washington University, St. Louis, MO, USA;  
MS in Electrical Engineering, Washington University, St. Louis, MO, USA;  
Master of Engineering Management, Washington University, St. Louis, MO, USA | Adjunct Instructor, Computer Science |
| 7   | Koutsakas, Phillipos   | BSc Computer Science from the Technological and Educational Institute of Thessaloniki, Greece;  
MPhil in teaching Computer Programming, Kingston University, London, UK;  
PhD Candidate, University of Thessaly, Volos, Greece | Adjunct Instructor, Computer Science |
|   | Name                   | Education                                                                                                                                       | Position                                      |
|---|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 8 | Mallidis, Ioannins     | B.Sc. in Economics from the University of Macedonia, Greece; M.Sc in Economics and Business with Specialization in Maritime Economics and Logistics from Erasmus University/Rotterdam School of Management, Holland; Ph.D. on Quantitative Methods in Supply Chain Network Design and Green Supply Chain Management from the Aristotle University, Greece. | Adjunct Professor, Mathematics, Computing     |
| 9 | Maou, Emmanuel         | B.S. in Mathematics from the Iowa Wesleyan College, IA, USA; M.S. in Applied Mathematics from the University of Iowa, IA, USA; Further studies at the Ph.D. level in Applied Mathematics and Higher Education, University of Iowa, IA, USA. | Regular Associate Professor Mathematics       |
| 10| Misirlis, Nikolaos     | BSc, Software Engineer University of L’Aquila, Italy; MSc, Graphic arts and Multimedia Hellenic Open University, Greece; PhD Candidate on “Social Media users personalities’ analysis on eHealth field” University of Macedonia, Greece | Adjunct Instructor, Computer Science          |
| 11| Morris, Brian C.       | B.F.A. from The School of the Art Institute of Chicago, USA Majors: Painting, Art & Technology (computer graphics); M. A. in Digital Arts from The University of the Arts London - Camberwell College of Arts, UK | Adjunct Instructor, Digital Arts              |
| 12| Samaras, Christos      | B.Sc. in Geology, Aristotle University of Thessaloniki, Thessaloniki, Greece; M.Sc. in Information Systems, Northeastern University, Boston, USA; Ph.D. in Electrical and Computer Engineering(“Data Transmission Protocols for Delay-Tolerant Networks”), Democritus University of Thrace, Xanthi, Greece; Data Science Specialization - Coursera, Verified certificates for the courses: The Data Scientist's Toolbox; R Programming, Johns Hopkins University, USA | Adjunct Professor, Computer Science          |
| 13| Stylogiannis, George   | BSc Mathematics, Aristotle University of Thessaloniki, Greece; MSc Mathematics, Aristotle University of Thessaloniki, Greece; Ph.D. Mathematics, Aristotle University of Thessaloniki, Greece | Adjunct Professor, Mathematics               |
| 14| Vezerides, Costis      | B.Sc. in Electrical Engineering from Aristotle University in Thessaloniki, Greece. M.Sc. in Computer Science from the University of Crete (Specialization: Knowledge Engineering and Conceptual Modelling). | Regular Lecturer, Computer Science            |
### 3. LIST OF SUPPORT STAFF

**ADMINISTRATIVE OFFICES**

<table>
<thead>
<tr>
<th>Office/Division</th>
<th>Name</th>
<th>Location</th>
<th>Phone No. (2310+No.)</th>
<th>e-mail (<a href="mailto:name@act.edu">name@act.edu</a>)</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Dr. Panayiotis Vlachos</td>
<td>Stephens Hall, 1st Floor</td>
<td>398204</td>
<td>pvla</td>
</tr>
<tr>
<td>Executive Assistant to the President</td>
<td>Ms. Elena Charalambides</td>
<td>Stephens Hall, 1st Floor</td>
<td>398204</td>
<td>elenacha</td>
</tr>
<tr>
<td>Vice-President for Operations &amp; Planning</td>
<td>Mr. Ioannis Tzorbatzoglou</td>
<td>Stephens Hall, 1st Floor</td>
<td>398326</td>
<td>yatso</td>
</tr>
<tr>
<td>Administrative Assistant to the VP for Operations</td>
<td>Ms. Lena Markoudi</td>
<td>Stephens Hall, 1st Floor</td>
<td>398278</td>
<td>elmar</td>
</tr>
<tr>
<td>Vice President for Institutional Advancement</td>
<td>Mr. Peter Chresanthakes</td>
<td>Stephens Hall, 1st Floor</td>
<td>398265</td>
<td>peter</td>
</tr>
<tr>
<td>Vice President for Finances &amp; HR/CFO</td>
<td>Mr. Pavlos Floros</td>
<td>Stephens Hall, 1st Floor</td>
<td>398214</td>
<td>pfloros</td>
</tr>
<tr>
<td>Admin. Asst. to the VP for Finances &amp; HR/CFO</td>
<td>Ms. Maria Grigoriou</td>
<td>Stephens Hall, 1st Floor</td>
<td>398306</td>
<td>mgrigor</td>
</tr>
<tr>
<td>Assistant Accountant</td>
<td>Ms. Eva Montiadou</td>
<td>Stephens Hall, Ground Floor</td>
<td>398219</td>
<td>emont</td>
</tr>
<tr>
<td>Human Resources Officer</td>
<td>Ms. Vicky Zaroucha</td>
<td>Stephens Hall, Ground Floor</td>
<td>398246</td>
<td>vickys</td>
</tr>
<tr>
<td>Director of College Relations</td>
<td>Ms. Rania Semertzian</td>
<td>Stephens Hall, 2nd Floor</td>
<td>398327</td>
<td>rsemer</td>
</tr>
<tr>
<td>Alumni and Public Relations Officer</td>
<td>Ms. Marina Charitopoulou</td>
<td>Stephens Hall, 2nd Floor</td>
<td>398220</td>
<td>mcharito</td>
</tr>
<tr>
<td>Position</td>
<td>Name</td>
<td>Address</td>
<td>Phone</td>
<td>Email</td>
</tr>
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<td>--------</td>
</tr>
<tr>
<td>Director of Marketing</td>
<td>Mr. Theodore Papanestoros</td>
<td>Stephens Hall, 1st Floor</td>
<td>398385</td>
<td>theodore</td>
</tr>
<tr>
<td>Director of International Programs</td>
<td>Ms. Heather Funk</td>
<td>New Building, Ground Floor</td>
<td>398215</td>
<td>heather</td>
</tr>
<tr>
<td>Study Abroad Coordinator</td>
<td>Ms. Miranda Margariti</td>
<td>New Building, Ground Floor</td>
<td>398205</td>
<td>mmargari</td>
</tr>
<tr>
<td>Student Services Coordinator</td>
<td>Ms. Natalia Alexiou</td>
<td>New Building, Ground Floor</td>
<td>398242</td>
<td>nalexio</td>
</tr>
<tr>
<td>Associate Director of Enrollment Management</td>
<td>Mr. Emmanuel Maou</td>
<td>Bissell Library, 1st Floor</td>
<td>398398</td>
<td>evrikons</td>
</tr>
<tr>
<td>Director of Admissions</td>
<td>Ms. Roula Lebetli</td>
<td>Bissell Library, 1st Floor</td>
<td>398239</td>
<td>admissions</td>
</tr>
<tr>
<td>Head Registrar</td>
<td>Ms. Antigoni Vlachopoulou</td>
<td>New Building, Ground Floor</td>
<td>398207</td>
<td>actreg</td>
</tr>
<tr>
<td>Administrative Assistant to the Registrar</td>
<td>Ms. Theodora Zafiriou</td>
<td>New Building, Ground Floor</td>
<td>398224</td>
<td>actreg</td>
</tr>
<tr>
<td>Business Liaison &amp; Career Services Officer</td>
<td>Mr. Dimitris Diamantis</td>
<td>Bissell Library, Ground Floor</td>
<td>398337</td>
<td>ddiamantis</td>
</tr>
<tr>
<td>Assistant Administrative Officer</td>
<td>Mr. Vassilis Loukidis</td>
<td>New Building, Ground Floor</td>
<td>398216</td>
<td>vloukid</td>
</tr>
</tbody>
</table>

4. **NAME, POSITION AND INSTITUTION OF THE EXTERNAL EXAMINER(S) INVOLVED IN THE PROGRAMME**

- Dr Dimitrios Asteriou, Oxford Brookes University, U.K. (Mathematics & Chief external examiner for business & computing programmes)
- Dr. Amanda Dewhurst, University of Bolton, U.K. (Computer Science)
- Professor Miltos Petridis, Middlesex University, U.K. (Computer Science)
5. **INTRODUCTION TO THE PROGRAMME**

The degree in Business Computing is a hybrid program that provides an excellent blend of Business knowledge and computing technologies. The program focuses on fundamental areas of Business (Management, Marketing, Accounting, Finance and Economics) and covers a breadth of Information Technologies (electronic office, programming, databases, multimedia, networking and the web). Graduates of the program will have the skills and training needed to understand Business functions, to analyse business-user information needs and to design and implement information systems.

The B.Sc. in Business Computing prepares the student for a career either in the field of Computer Science and its applications in the field of Business. The program develops broadly educated and competent graduates ready to pursue professional careers or graduate studies in either Business or Computer Science.

The program plays an emphasis on technology based teaching. A Learning Management System (LMS) is used in a number of modules as communication, coordination and dissemination tools.

Training in research methods and a final year capstone project provide the theoretical and practical framework for successful performance of program graduates in industry or academia.

The program serves the following fundamental aims:

- To provide knowledge and the cognitive foundation expected of a graduate of higher education entering the industry or continuing in academia.
- To provide work opportunities in the fields of Business Studies and/or Computer Science by combining academic theory, practical implementation of skills and exposure to Information Technology.
- To develop knowledge, understanding, problem solving skills and where possible experience in the field of Business Studies with emphasis in the application of Information Technology.
- To provide exposure, training and experience in major fields of computing especially pertaining to the office and enterprise: electronic office, programming, databases, multimedia, networking and the Web.
- To develop appreciation, assessment, analysis, design, usage and programming skills applied to enterprise problem solving through Information Technology.
- To produce reflective, market-aware members of contemporary society through exposure to multiple disciplines, their interrelationship and a wider breadth of learning.
- To instill lifelong values, ethos and responsibility surrounding professional practice.

The B.Sc. in Business and Computing was launched in September 1999 following internal proposals and research during 1997-1999 based on the main rationales that 1) a degree in computing was increasingly popular and 2) often CS graduates did not possess enough business knowledge. This hybrid
programme offers graduates increased competitiveness in the market. The programme changed to exclusively Computer Science in 2004 and was later re-introduced as Business Computing in 2010. It was validated by Open University, UK. in 2013 and revalidated in the Spring of 2018.

In order to receive the BSc degree, the student must have fulfilled all the GER and major requirements and have completed at least 121 US credit hours with an overall G.PA of 2.0 or better. All business computing students take a two-semester sequence Senior Thesis I and II course. According to NEASC Standards, students must complete at least one fourth of their undergraduate program, including advanced work in the major or concentration, at the institution awarding the degree. As a consequence, all candidates for an ACT degree must have been in residence at the College during the last two semesters of full time instruction, assuming availability and equivalency of transferable courses.
6. **PROGRAMME SPECIFICATION**

The mission of the Division of Technology & Science is to offer innovative, leading edge technology programs in computing and academically sound service courses in the areas of Mathematics, Statistics and Science. As computing is a rapidly evolving discipline we continuously adapt our curriculum and facilities to meet the changing demands of the computing profession.

The computing programs target:
- Students that are interested primarily in computing and Business with an emphasis in Information Systems
- Students or professionals that are interested to specialize in certain areas in computing. In particular the certificate and special programs provide training opportunities for the wider community.

Courses in the Division are designed to broaden students' perspectives on the role of computing, mathematics, statistics and science in the modern world, while equipping them with both computer literacy and quantitative skills. A broad range of computing courses is offered, the majority having a strong laboratory component with emphasis on application.

**ACT Degree Competitive Advantage Areas**

An ACT graduate with the BSc (Hons) in Business Computing will have obtained a theoretical and practical adequacy in the field of IT application and design, a sound business domain knowledge and directly marketable skills through the ability to further obtain certifications popular technologies (CCNA, ORACLE).
- Programming
- Databases
- Networking
- Information's Systems Analysis
- Business Processes

**Special Features**

The programs do not concentrate only on the latest technologies, which at some point will become outdated, but provide students with excellent critical skills and systematic thinking that will allow them to become lifelong learners and succeed in a wide variety of technical and managerial positions. Students are prepared for a successful career in the field of computing and its applications and/or additional study in computing or Business at the graduate level.

**Computing and Teaching Facilities**
Modern computer facilities include over 20 high-speed servers present in the network infrastructure and more than 130 latest technology workstations all connected to the Internet, available to students in 5 laboratories. All the necessary software for programming, multimedia, web-development and instruction is available in the labs for you to use. Students have access to printing and scanning devices. Our classrooms are spacious and equipped with a PC and projector. All classrooms are connected to a high-speed campus network and are connected to the internet. Students have abandoned personal and secure server storage area, accessible from campus and home and are provided with email and Moodle accounts. Technical support is available and of first-rate level. Wi-Fi is available around the campus for laptop and mobile internet access.
**INTENDED LEARNING OUTCOMES**

**Intended learning outcomes at Level 4 are listed below:**

### Learning Outcomes – LEVEL 4

<table>
<thead>
<tr>
<th>Learning outcomes:</th>
<th>Learning and teaching strategy/ assessment methods</th>
</tr>
</thead>
</table>
| **3A. Knowledge and understanding** | Guided teaching environment (Lectures & labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material. Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work. Tools to be used to achieve this will include some or all from the following:  
  - printed and online teaching texts  
  - directed readings from textbooks and papers  
  - Specialised software tools. |
| **A. Knowledge and understanding** – On completion of this degree you will have:  
  1) an understanding of some fundamental principles, concepts and techniques underlying business computing;  
  2) an awareness of the range of models and languages to support the analysis and design of business computing systems;  
  3) an awareness of the range of situations in which business computing systems are used and the ways in which people interact with them;  
  4) an awareness of the ethical, social and legal issues that can be associated with the deployment of business computing systems;  
  5) an awareness of major trends in business computing and of the implications of these trends.  
  6) an awareness of Business Processes and be able to demonstrate understanding in the areas of: Accounting, Finance, Management and Marketing | **Support of learning:**  
Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor. Tools to be used to achieve this will include some or all from the following:  
  - self-assessment questions and exercises, included in the teaching texts  
  - programming tasks, computer-based investigations and open-ended project work  
  - feedback and guidance from an instructor; tutorials, revisions and in-class activities  
  - e-mail and individual instructor-learner conferences  
  - Study and project guides.  

**Assessment of learning:**  
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.
## Learning Outcomes – LEVEL 4

### 3A. Knowledge and understanding

<table>
<thead>
<tr>
<th>Tools to be used to achieve this will include some or all from the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Instructor-Marked summative formal examinations</td>
</tr>
<tr>
<td>- Instructor-Marked summative projects</td>
</tr>
<tr>
<td>- Instructor-Marked summative presentations</td>
</tr>
<tr>
<td>- Instructor-Marked formative assignments/assessment</td>
</tr>
<tr>
<td>Instructor-Marked formative projects</td>
</tr>
</tbody>
</table>

### 3B. Cognitive skills

<table>
<thead>
<tr>
<th>Learning outcomes:</th>
<th>Learning and teaching strategy/ assessment methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B. Cognitive skills</strong> – On completion of this degree you will be able to:</td>
<td></td>
</tr>
<tr>
<td>1) apply key concepts from business computing in specified contexts;</td>
<td>Guided teaching environment (Lectures &amp; labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material.</td>
</tr>
<tr>
<td>2) apply appropriate techniques and tools for, problem-solving, designing and testing business computing systems;</td>
<td>Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work.</td>
</tr>
<tr>
<td>3) carry out a project in business computing that applies and extends your knowledge and understanding;</td>
<td>Tools to be used to achieve this will include some or all from the following:</td>
</tr>
<tr>
<td></td>
<td>- printed and online teaching texts</td>
</tr>
<tr>
<td></td>
<td>- directed readings from textbooks and papers</td>
</tr>
<tr>
<td></td>
<td>- Specialised software tools.</td>
</tr>
</tbody>
</table>

**Support of learning:**
Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor.

Tools to be used to achieve this will include some or all from the following:
- self-assessment questions and exercises, included in the teaching texts
- programming tasks, computer-based investigations and open-ended project work
### 3B. Cognitive skills

- feedback and guidance from an instructor; tutorials, revisions and in-class activities
- e-mail and individual instructor-learner conferences
- Study and project guides.

**Assessment of learning:**
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.

Tools to be used to achieve this will include some or all from the following:
- Instructor-Marked summative formal examinations
- Instructor-Marked summative projects
- Instructor-Marked summative presentations
- Instructor-Marked formative assignments/assessment
- Instructor-Marked formative projects

### 3C. Practical and professional skills

**Learning outcomes:**

**C. Key skills** – On completion of this degree you will be able to:

1. communicate information, arguments ideas and issues clearly and in appropriate ways;
2. work in a group, communicating effectively in a distance setting where the communication is computer-mediated;
3. work independently, planning, monitoring, reflecting on and improving your own learning;
4. find information from a variety of sources, using information technology where necessary;
5. use appropriate numerical techniques to solve problems.
6. apply suitable techniques to solve simple business computing problems.

**Learning and teaching strategy/ assessment methods**

Guided teaching environment (Lectures & labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material.

Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work.

Tools to be used to achieve this will include some or all from the following:
- printed and online teaching texts
- directed readings from textbooks and papers
- Specialised software tools.

**Support of learning:**

Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor.
3C. Practical and professional skills

Tools to be used to achieve this will include some or all from the following:
- self-assessment questions and exercises, included in the teaching texts
- programming tasks, computer-based investigations and open-ended project work
- feedback and guidance from an instructor; tutorials, revisions and in-class activities
- e-mail and individual instructor-learner conferences
- Study and project guides.

Assessment of learning:
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.
Tools to be used to achieve this will include some or all from the following:
- Instructor-Marked summative formal examinations
- Instructor-Marked summative projects
- Instructor-Marked summative presentations
- Instructor-Marked formative assignments/assessment
- Instructor-Marked formative projects

3D. Key/transferable skills

<table>
<thead>
<tr>
<th>Learning outcomes:</th>
<th>Learning and teaching strategy/ assessment methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D. Practical and/or professional skills</strong> – On completion of this degree you will be able to:</td>
<td>Guided teaching environment (Lectures &amp; labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material. Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work. Tools to be used to achieve this will include some or all from the following:</td>
</tr>
<tr>
<td>1) develop and test technology simple business computing systems;</td>
<td>• printed and online teaching texts</td>
</tr>
<tr>
<td>2) plan and organise yourself and your work appropriately;</td>
<td>• directed readings from textbooks and papers</td>
</tr>
<tr>
<td>3) undertake on-going learning in order to keep up to date with business computing;</td>
<td>• Specialised software tools.</td>
</tr>
<tr>
<td>4) identify the ethical, social and legal issues that may arise during the development and use of business computing systems;</td>
<td></td>
</tr>
<tr>
<td>3D. Key/transferable skills</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td>5) use appropriate professional ICT tools, as appropriate, to help you learn effectively.</td>
<td></td>
</tr>
</tbody>
</table>

**Support of learning:**
Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor.
Tools to be used to achieve this will include some or all from the following:
- self-assessment questions and exercises, included in the teaching texts
- programming tasks, computer-based investigations and open-ended project work
- feedback and guidance from an instructor; tutorials, revisions and in-class activities
- e-mail and individual instructor-learner conferences
- Study and project guides.

**Assessment of learning:**
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.
Tools to be used to achieve this will include some or all from the following:
- Instructor-Marked summative formal examinations
- Instructor-Marked summative projects
- Instructor-Marked summative presentations
- Instructor-Marked formative assignments/assessment
- Instructor-Marked formative projects

**Exit Award:** If the learning outcomes have been met, then the student is entitled to receive a Certificate of Higher Education in Business Computing/120 credits at Level 4.
Intended learning outcomes at Level 5 are listed below:

<table>
<thead>
<tr>
<th>Learning outcomes:</th>
<th>Learning and teaching strategy/ assessment methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3A. Knowledge and understanding</strong> – On completion of this degree you will have:</td>
<td>Guided teaching environment (Lectures &amp; labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material. Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work. Tools to be used to achieve this will include some or all from the following:</td>
</tr>
<tr>
<td>1) a knowledge and understanding of relevant principles and concepts underlying business computing;</td>
<td>• printed and online teaching texts</td>
</tr>
<tr>
<td>2) an ability to apply correctly common techniques for the design and development of business computing systems;</td>
<td>• directed readings from textbooks and papers</td>
</tr>
<tr>
<td>3) an awareness of the range of situations in which business computing systems are used and the ways in which people interact with them;</td>
<td>• Specialised software tools.</td>
</tr>
<tr>
<td>4) an appreciation of the ethical, social and legal issues that can be associated with the deployment of business computing systems;</td>
<td>Support of learning:</td>
</tr>
<tr>
<td>5) an awareness of major trends in business computing and of the implications of these trends.</td>
<td>Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor. Tools to be used to achieve this will include some or all from the following:</td>
</tr>
<tr>
<td>6) the ability analyse Business Processes and be able to apply understanding in the areas of: Accounting, Finance, Management and Marketing.</td>
<td>• self-assessment questions and exercises, included in the teaching texts</td>
</tr>
<tr>
<td></td>
<td>• programming tasks, computer-based investigations and open-ended project work</td>
</tr>
<tr>
<td></td>
<td>• feedback and guidance from an instructor; tutorials, revisions and in-class activities</td>
</tr>
<tr>
<td></td>
<td>• e-mail and individual instructor-learner conferences</td>
</tr>
<tr>
<td></td>
<td>• Study and project guides.</td>
</tr>
</tbody>
</table>

**Assessment of learning:**
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken. Tools to be used to achieve this will include some or all from the following:
## Learning Outcomes – LEVEL 5

### 3A. Knowledge and understanding

- Instructor-Marked summative formal examinations
- Instructor-Marked summative projects
- Instructor-Marked summative presentations
- Instructor-Marked formative assignments/assessment
- Instructor-Marked formative projects

### 3B. Cognitive skills

**Learning outcomes:**

B. **Cognitive skills** – On completion of this degree you will be able to:

1. apply correctly key business computing concepts in a range of contexts;
2. apply appropriate techniques and tools for abstracting, modelling, problem-solving, designing and testing business computing systems;
3. compare and contrast, specifications and implementations of business computing systems and simple hardware systems;
4. reflect on what you achieve in your studies, and how you might improve your performance.

**Learning and teaching strategy/ assessment methods**

Guided teaching environment (Lectures & labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material. Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work.

Tools to be used to achieve this will include some or all from the following:

- printed and online teaching texts
- directed readings from textbooks and papers
- Specialised software tools.

**Support of learning:**

Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor.

Tools to be used to achieve this will include some or all from the following:

- self-assessment questions and exercises, included in the teaching texts
- programming tasks, computer-based investigations and open-ended project work
- feedback and guidance from an instructor; tutorials, revisions and in-class
3B. Cognitive skills

### Activities
- E-mail and individual instructor-learner conferences
- Study and project guides.

### Assessment of learning:
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.

Tools to be used to achieve this will include some or all from the following:
- Instructor-Marked summative formal examinations
- Instructor-Marked summative projects
- Instructor-Marked summative presentations
- Instructor-Marked formative assignments/assessment
- Instructor-Marked formative projects

3C. Practical and professional skills

<table>
<thead>
<tr>
<th>Learning outcomes:</th>
<th>Learning and teaching strategy/ assessment methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C. Key skills</strong> – On completion of this degree you will be able to:</td>
<td></td>
</tr>
<tr>
<td>1) communicate information, arguments and ideas effectively, using the styles and language appropriate to your subject, purpose and audience;</td>
<td></td>
</tr>
<tr>
<td>2) work in a group, communicating effectively in a distance setting where the communication is computer-mediated;</td>
<td></td>
</tr>
<tr>
<td>3) work independently, planning, monitoring and reviewing your own learning;</td>
<td></td>
</tr>
<tr>
<td>4) find, assess and use information from a variety of sources, using information technology where necessary;</td>
<td></td>
</tr>
<tr>
<td>5) use appropriate numerical and analytical techniques to solve problems;</td>
<td></td>
</tr>
<tr>
<td>6) understand a range of technological problems and apply suitable</td>
<td>Guided teaching environment (Lectures &amp; labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material. Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work. Tools to be used to achieve this will include some or all from the following:</td>
</tr>
<tr>
<td></td>
<td>- printed and online teaching texts</td>
</tr>
<tr>
<td></td>
<td>- directed readings from textbooks and papers</td>
</tr>
<tr>
<td></td>
<td>- Specialised software tools.</td>
</tr>
<tr>
<td><strong>Support of learning:</strong></td>
<td>Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor. Tools to be used to achieve this will include some or all from the following:</td>
</tr>
<tr>
<td></td>
<td>- printed and online teaching texts</td>
</tr>
<tr>
<td></td>
<td>- directed readings from textbooks and papers</td>
</tr>
<tr>
<td></td>
<td>- Specialised software tools.</td>
</tr>
</tbody>
</table>
### 3C. Practical and professional skills

<table>
<thead>
<tr>
<th>Tools to be used to achieve this will include some or all from the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• self-assessment questions and exercises, included in the teaching texts</td>
</tr>
<tr>
<td>• programming tasks, computer-based investigations and open-ended project work</td>
</tr>
<tr>
<td>• feedback and guidance from an instructor; tutorials, revisions and in-class activities</td>
</tr>
<tr>
<td>• e-mail and individual instructor-learner conferences</td>
</tr>
<tr>
<td>• Study and project guides.</td>
</tr>
</tbody>
</table>

**Assessment of learning:**

An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.

**Tools to be used to achieve this will include some or all from the following:**

- Instructor-Marked summative formal examinations
- Instructor-Marked summative projects
- Instructor-Marked summative presentations
- Instructor-Marked formative assignments/assessment
- Instructor-Marked formative projects

### 3D. Key/transferable skills

<table>
<thead>
<tr>
<th>Learning outcomes:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D. Practical and/or professional skills</strong> – On completion of this degree you will be able to:</td>
</tr>
<tr>
<td>1) analyse, design, evaluate and/or test business computing systems;</td>
</tr>
<tr>
<td>2) recognise and record your skills and knowledge to support your personal and/or your career goals;</td>
</tr>
<tr>
<td>3) demonstrate the ability to undertake ongoing learning in order to keep up to date with business computing;</td>
</tr>
<tr>
<td>4) identify and explain the ethical, social and legal issues that may</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning and teaching strategy/ assessment methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guided teaching environment (Lectures &amp; labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material.</td>
</tr>
<tr>
<td>Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work.</td>
</tr>
<tr>
<td>Tools to be used to achieve this will include some or all from the following:</td>
</tr>
<tr>
<td>• printed and online teaching texts</td>
</tr>
<tr>
<td>• directed readings from textbooks and papers</td>
</tr>
<tr>
<td>• Specialised software tools.</td>
</tr>
</tbody>
</table>

**Support of learning:**
| 3D. Key/transferable skills |
---|---|
arise during the development and use of business computing systems;  
5) use appropriate professional ICT tools to help you learn effectively. |
Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor.  
Tools to be used to achieve this will include some or all from the following:  
- self-assessment questions and exercises, included in the teaching texts  
- programming tasks, computer-based investigations and open-ended project work  
- feedback and guidance from an instructor; tutorials, revisions and in-class activities  
- e-mail and individual instructor-learner conferences  
- Study and project guides.  
**Assessment of learning:**  
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.  
Tools to be used to achieve this will include some or all from the following:  
- Instructor-Marked summative formal examinations  
- Instructor-Marked summative projects  
- Instructor-Marked summative presentations  
- Instructor-Marked formative assignments/assessment  
- Instructor-Marked formative projects |

Exit Award: If the learning outcomes have been met, then the student is entitled to receive a Diploma of Higher Education in Business Computing/240 credits (120 at Level 4, 120 at Level 5)
Intended learning outcomes at Level 6 are listed below:

<table>
<thead>
<tr>
<th>Learning outcomes:</th>
<th>Learning and teaching strategy/ assessment methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Knowledge and understanding</strong> – On completion of this degree you will have:</td>
<td><strong>Guided teaching environment (Lectures &amp; labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material.</strong></td>
</tr>
<tr>
<td>1) a broad critical understanding of the fundamental principles,</td>
<td><strong>Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work.</strong></td>
</tr>
<tr>
<td>concepts and techniques underlying business computing;</td>
<td><strong>Tools to be used to achieve this will include some or all from the following:</strong></td>
</tr>
<tr>
<td>2) an understanding of a range of models and languages to support the analysis and</td>
<td>• printed and online teaching texts</td>
</tr>
<tr>
<td>design of business computing systems;</td>
<td>• directed readings from textbooks and papers</td>
</tr>
<tr>
<td>3) an understanding of the range of situations in which business computing</td>
<td>• Specialised software tools.</td>
</tr>
<tr>
<td>systems are used, the ways in which people interact with them, and the</td>
<td><strong>Support of learning:</strong></td>
</tr>
<tr>
<td>possibilities and limitations of such systems;</td>
<td>Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor.</td>
</tr>
<tr>
<td>4) a critical awareness of the ethical, social and legal issues that can be</td>
<td><strong>Tools to be used to achieve this will include some or all from the following:</strong></td>
</tr>
<tr>
<td>be associated with the development and deployment of business computing</td>
<td>• self-assessment questions and exercises, included in the teaching texts</td>
</tr>
<tr>
<td>systems;</td>
<td>• programming tasks, computer-based investigations and open-ended project work</td>
</tr>
<tr>
<td>5) an awareness of major trends in business computing and of the implications of</td>
<td>• feedback and guidance from an instructor; tutorials, revisions and in-class activities</td>
</tr>
<tr>
<td>these trends.</td>
<td>• e-mail and individual instructor-learner conferences</td>
</tr>
<tr>
<td>6) a critical understanding of Business Processes and be able to demonstrate</td>
<td>• Study and project guides.</td>
</tr>
<tr>
<td>understanding in a broad set of: Accountancy, Finance, Management and</td>
<td><strong>Assessment of learning:</strong></td>
</tr>
<tr>
<td>Marketing areas</td>
<td>An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.</td>
</tr>
<tr>
<td></td>
<td><strong>Tools to be used to achieve this will include some or all from the following:</strong></td>
</tr>
</tbody>
</table>

**Guided teaching environment (Lectures & labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material. Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work.**

Tools to be used to achieve this will include some or all from the following:
- printed and online teaching texts
- directed readings from textbooks and papers
- Specialised software tools.

**Support of learning:**
Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor.

Tools to be used to achieve this will include some or all from the following:
- self-assessment questions and exercises, included in the teaching texts
- programming tasks, computer-based investigations and open-ended project work
- feedback and guidance from an instructor; tutorials, revisions and in-class activities
- e-mail and individual instructor-learner conferences
- Study and project guides.

**Assessment of learning:**
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.

Tools to be used to achieve this will include some or all from the following:
# Learning Outcomes – LEVEL 6

## 3A. Knowledge and understanding

- Instructor-Marked summative formal examinations
- Instructor-Marked summative projects
- Instructor-Marked summative presentations
- Instructor-Marked formative assignments/assessment
- Instructor-Marked formative projects

## 3B. Cognitive skills

### Learning outcomes:

**B. Cognitive skills** – On completion of this degree you will be able to:

1. apply and critically evaluate key business computing concepts in a range of contexts;
2. select and apply appropriate techniques and tools for abstracting, modelling, problem-solving, designing and testing business computing systems, and be aware of the limitations involved;
3. compare, contrast, critically analyse and refine specifications and implementations of business systems and simple hardware systems;
4. devise and carry out a project in business computing that applies and extends your knowledge and understanding, and critically reflect on the processes involved and the outcomes of your work.

### Learning and teaching strategy/ assessment methods

Guided teaching environment (Lectures & labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material.

Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work.

Tools to be used to achieve this will include some or all from the following:

- printed and online teaching texts
- directed readings from textbooks and papers
- Specialised software tools.

### Support of learning:

Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor.

Tools to be used to achieve this will include some or all from the following:

- self-assessment questions and exercises, included in the teaching texts
- programming tasks, computer-based investigations and open-ended project work
- feedback and guidance from an instructor; tutorials, revisions and in-class
### 3B. Cognitive skills

**Activities**
- e-mail and individual instructor-learner conferences
- Study and project guides.

**Assessment of learning:**
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.

Tools to be used to achieve this will include some or all from the following:
- Instructor-Marked summative formal examinations
- Instructor-Marked summative projects
- Instructor-Marked summative presentations
- Instructor-Marked formative assignments/assessment
- Instructor-Marked formative projects

### 3C. Practical and professional skills

#### Learning outcomes:

**C. Key skills** – On completion of this degree you will be able to:
1) communicate information, arguments, ideas and issues clearly and in appropriate ways, bearing in mind the audience for and the purpose of your communication;
2) work in a group, communicating effectively both using digital communication and in face-to-face contexts;
3) work independently, planning, monitoring, reflecting on and improving your own learning;
4) find, assess and apply information from a variety of sources, using information technology where necessary;
5) select and use accurately, appropriate numerical and analytical techniques to solve problems;
6) recognise and understand a range of technological problems and

#### Learning and teaching strategy/ assessment methods

Guided teaching environment (Lectures & labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material.

Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work.

Tools to be used to achieve this will include some or all from the following:
- printed and online teaching texts
- directed readings from textbooks and papers
- Specialised software tools.

**Support of learning:**
Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor.

Tools to be used to achieve this will include some or all from the following:
### 3C. Practical and professional skills

<table>
<thead>
<tr>
<th>Learning outcomes:</th>
<th>Learning and teaching strategy/ assessment methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. Practical and/or professional skills – On completion of this degree you will be able to:</td>
<td>Guided teaching environment (Lectures &amp; labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material. Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work. Tools to be used to achieve this will include some or all from the following:</td>
</tr>
<tr>
<td>1. analyse, design, evaluate and/or test business computing systems, using appropriate simulation and modelling tools where appropriate;</td>
<td>• printed and online teaching texts</td>
</tr>
<tr>
<td>2. plan and organise yourself and your work appropriately, including keeping systematic records of work in progress and outcomes;</td>
<td>• directed readings from textbooks and papers</td>
</tr>
<tr>
<td>3. demonstrate the ability to undertake on-going learning in order to keep up to date with business computing;</td>
<td>• Specialised software tools.</td>
</tr>
</tbody>
</table>

- self-assessment questions and exercises, included in the teaching texts
- programming tasks, computer-based investigations and open-ended project work
- feedback and guidance from an instructor; tutorials, revisions and in-class activities
- e-mail and individual instructor-learner conferences
- Study and project guides.

**Assessment of learning:**
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken. Tools to be used to achieve this will include some or all from the following:
- Instructor-Marked summative formal examinations
- Instructor-Marked summative projects
- Instructor-Marked summative presentations
- Instructor-Marked formative assignments/assessment
- Instructor-Marked formative projects

### 3D. Key/transferable skills

Learning outcomes:

Guided teaching environment (Lectures & labs) is the principal method of delivery for the concepts, principles and skills involved in the outcomes. Students are also directed to reading from textbooks, academic papers and other alike material. Understanding is reinforced by means of exercise classes, discussion groups, laboratories, assignments and project work. Tools to be used to achieve this will include some or all from the following:
- printed and online teaching texts
- directed readings from textbooks and papers
- Specialised software tools.
<table>
<thead>
<tr>
<th>3D. Key/transferable skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>4) identify and address the ethical, social and legal issues that may arise during the development and use of business computing systems;</td>
</tr>
<tr>
<td>5) use appropriate professional ICT tools to support your work.</td>
</tr>
</tbody>
</table>

Learning is supported outside the classroom with the use of the learning management system Moodle, instructor office hours, sample answers to assessment and extra lectures as seen appropriate by the instructor.

Tools to be used to achieve this will include some or all from the following:
- self-assessment questions and exercises, included in the teaching texts
- programming tasks, computer-based investigations and open-ended project work
- feedback and guidance from an instructor; tutorials, revisions and in-class activities
- e-mail and individual instructor-learner conferences
- Study and project guides.

**Assessment of learning:**
An assessment of the understanding of underlying concepts and principles forms part of the overall assessment of final exams/projects submitted/taken.

Tools to be used to achieve this will include some or all from the following:
- Instructor-Marked summative formal examinations
- Instructor-Marked summative projects
- Instructor-Marked summative presentations
- Instructor-Marked formative assignments/assessment
- Instructor-Marked formative projects

**Exit Award:**
If the learning outcomes have been met, then the student is entitled to receive a BS Ordinary in Business Computing/300 credits (120 at Level 4, 120 at Level 5, 60 at Level 6)
Or transfer to BS (Hons) Business Computing (subject to validation)

BS (Hons) Business Computing/360 Credits (120 at Level 4, 120 at Level 5, 120 at Level 6)
### PROGRAMME STRUCTURE

<table>
<thead>
<tr>
<th>Year 01</th>
<th>Level 4</th>
<th>OU Module Count</th>
<th>Semester 01 (Fall)</th>
<th>OU Module Count</th>
<th>Semester 02 (Spring)</th>
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<tr>
<td></td>
<td></td>
<td>1</td>
<td>Computer Science 105 - Introduction to Programming I – Structured Programming</td>
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<td>Computer Science 106 - Introduction to Programming II – Object Oriented Programming</td>
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<td>Computer Science 205 - Business Data Management</td>
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<td>ACT module - Math 101 (Finite Mathematics) (GER)</td>
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<td></td>
<td>ACT module - COMPUTER SCIENCE 151 – Quantitative Computing</td>
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<td>ACT module - Politics 101 (GER)</td>
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<table>
<thead>
<tr>
<th>Year 02</th>
<th>Level 4</th>
<th>OU Module Count</th>
<th>Semester 01 (Fall)</th>
<th>OU Module Count</th>
<th>Semester 02 (Spring)</th>
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<tr>
<td></td>
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<td>5</td>
<td>Computer Science 215 - Algorithms &amp; Data Structures</td>
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<td></td>
<td></td>
<td>6</td>
<td>Computer Science 107 - Digital Media Toolkit</td>
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<td>General Business Elective 02 (see list below)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>ACT module - English 204 (ACT Degree Requirement)</td>
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<td>ACT module - ART Module (English 120 or Art 120 or Music 120 ) (GER)</td>
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<td></td>
<td></td>
<td></td>
<td>ACT module - SCIENCE with Lab( Biology or Chemistry or Ecology or Physics)</td>
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<td>ACT module - SOCIAL SCIENCE Module (Anthro 101 or Soc 101 or Psych 101) (GER)</td>
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<td></td>
<td>ACT module - Philosophy 101 (GER)</td>
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<td>ACT module - (Business Elective Module 03) (See list below) (ACT Degree Requirement)</td>
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<table>
<thead>
<tr>
<th>General Business Elective List (Level 4)</th>
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<tbody>
<tr>
<td>Economics 101 - Introductory Microeconomics</td>
</tr>
<tr>
<td>Marketing 101 - Introduction to Marketing</td>
</tr>
<tr>
<td>Accounting 101 - Financial Accounting</td>
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<tr>
<td>Management 101 - Introduction to Management</td>
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</table>

Exit Award: If the learning outcomes have been met, then the student is entitled to receive a Certificate of Higher Education in Business Computing/120 credits at Level 4
<table>
<thead>
<tr>
<th>Year 03</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Computer Science 206 - Web Development</td>
</tr>
<tr>
<td>2</td>
<td>Computer Science 312 - Database Management Systems</td>
</tr>
<tr>
<td>3</td>
<td>Finance 201 - Financial Management</td>
</tr>
<tr>
<td>4</td>
<td>Research 299 - Research Methods</td>
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<tr>
<td>5</td>
<td>Computer Science 306 - Advanced Web Development</td>
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<td>6</td>
<td>Management 201 - Organizational Behaviour</td>
</tr>
<tr>
<td>7</td>
<td>Computer Science 450 - System Analysis and Design</td>
</tr>
<tr>
<td>ACT module - Phil 203 - Ethics (ACT Degree Requirement)</td>
<td>ACT module - Business or Computing Level 5 or above (ACT Degree Requirement)</td>
</tr>
</tbody>
</table>

**Exit Award:** If the learning outcomes have been met, then the student is entitled to receive a Diploma of Higher Education in Business Computing/240 credits (120 at Level 4, 120 at Level 5)

<table>
<thead>
<tr>
<th>Year 04</th>
<th>Level 6</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Computer Science 325 - Distributed Applications</td>
</tr>
<tr>
<td>2</td>
<td>Major Elective 01 - (Computing or Business Module - See below)</td>
</tr>
<tr>
<td>3</td>
<td>Major Elective 02 - (Computing or Business Module - See below)</td>
</tr>
<tr>
<td>4</td>
<td>Major Elective 03 - (Computing or Business Module - See below)</td>
</tr>
<tr>
<td>5</td>
<td>Computer Science 443 - Capstone Project I (Thesis I)</td>
</tr>
<tr>
<td>6</td>
<td>Computer Science 322 - Network Operating Systems and Administration</td>
</tr>
<tr>
<td>7</td>
<td>Management 312 - Operations Management</td>
</tr>
<tr>
<td>8</td>
<td>Computer Science 444 - Capstone Project II (Thesis II)</td>
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</tbody>
</table>

**Exit Award:**
If the learning outcomes have been met, then the student is entitled to receive a BS Ordinary in Business Computing/300 credits (120 at Level 4, 120 at Level 5, 60 at Level 6)
Or transfer to BS (Hons) Business Computing

**BS (Hons) Business Computing/360 Credits (120 at Level 4, 120 at Level 5, 120 at Level 6)**

**Major Electives List (Any 3 of these required for the OU degree - Level 6)**

<table>
<thead>
<tr>
<th>Computing</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science 219 - Video Game Design</td>
<td>FINANCE 210 - International Money and Banking</td>
</tr>
<tr>
<td>Computer Science 321 - Operating Systems</td>
<td>FINANCE 220 - Investment and Portfolio Management</td>
</tr>
<tr>
<td>Computer Science 330 - Introduction to Mobile Robotics</td>
<td>FINANCE 232 - International Finance</td>
</tr>
<tr>
<td>Computer Science 333 - CISCO Advanced LAN and WAN Design</td>
<td>Management 210 - Human Resource Management for Growth</td>
</tr>
<tr>
<td>Computer Science 401 – Quantitative Operations Models</td>
<td>Marketing 320 - Marketing Research</td>
</tr>
<tr>
<td>Computer Science 412 - Object Oriented Design Patterns</td>
<td>Marketing 324 - E-Marketing</td>
</tr>
<tr>
<td>Computer Science 422 - Advanced DBMS</td>
<td></td>
</tr>
<tr>
<td>Computer Science 499 - Advanced Programming Tools</td>
<td></td>
</tr>
<tr>
<td>Computer Science 421 - Computer Systems Security</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The above list includes more Computing modules than Business ones. The department deems this appropriate, as it wants to offer a degree with heavier emphasis on Computing, while providing ample opportunity for study in Business. In addition please note that according to the full ACT degree module table at the beginning of this annexe (which includes the OU and the ACT only modules), that students have the option of taking up to 2 additional business modules in years 3 and 4.
SUGGESTED PROGRAM OF STUDIES

Year One:
- Mathematics 101
- Mathematics 115 (OU)
- Computer Science 105 (OU)
- Computer Science 106 (OU)
- Computer Science 107 (OU)
- Biology 101, Biology 112 or Ecology 110 or Chemistry 101
- or Chemistry 115 or Physics 120
- English 101
- English 102
- History 120
- Politics 101

Year Two (Level 4):
- Computer Science 215 (OU)
- Computer Science 205 (OU)
- Accounting 101
- Economics 101 (OU)
- Marketing 101 (OU)
- Philosophy 101
- Computer Science 151
- English 120, Art 120, or Music 120
- English 204
- Anthropology 101 or Sociology 101 or Psychology 101

Year Three (Level 5):
- Computer Science 206 (OU)
- Computer Science 312 (OU)
- Computer Science 306 (OU)
- Computer Science 450 (OU)
- Statistics 205 (OU)
- Finance 201 (OU)
- Management 201 (OU)
- Research Methods 299 (OU)
- Philosophy 203
- Elective (Computer Science or Business – level 300 or above)

Year Four (Level 6):
- Computer Science 322 (OU)
- Computer Science 325 (OU)
- Capstone Project: Computer Science 443 (OU)
- Capstone Project: Computer Science 444 (OU)
- Computer Science/Business Major Elective (OU)
- Computer Science/Business Major Elective (OU)
- Computer Science/Business Major Elective (OU)
- Management 312 (OU)
- Business Administration 240
CURRICULUM MAP: BSc (Hons) Business Computing

A. Knowledge and understanding – On completion of this degree you will have:
   1) a broad critical understanding of the fundamental principles, concepts and techniques underlying business computing;
   2) an understanding of a range of models and languages to support the analysis and design of business computing systems;
   3) an understanding of the range of situations in which business computing systems are used, the ways in which people interact with them, and the possibilities and limitations of such systems;
   4) a critical awareness of the ethical, social and legal issues that can be associated with the development and deployment of business computing systems;
   5) an awareness of major trends in business computing and of the implications of these trends;
   6) a critical understanding of Business Processes and be able to demonstrate understanding in a broad set of: Accounting, Finance, Management and Marketing areas.

B. Cognitive skills – On completion of this degree you will be able to:
   1) apply and critically evaluate key business computing concepts in a range of contexts;
   2) select and apply appropriate techniques and tools for abstracting, modelling, problem-solving, designing and testing business computing systems, and be aware of the limitations involved;
   3) compare, contrast, critically analyse and refine specifications and implementations of business systems and simple hardware systems;
   4) devise and carry out a project in business computing that applies and extends your knowledge and understanding, and critically reflect on the processes involved and the outcomes of your work.

C. Key skills – On completion of this degree you will be able to:
   1) communicate information, arguments, ideas and issues clearly and in appropriate ways, bearing in mind the audience for and the purpose of your communication;
   2) work in a group, communicating effectively both using digital communication and in face-to-face contexts;
   3) work independently, planning, monitoring, reflecting on and improving your own learning;
   4) find, assess and apply information from a variety of sources, using information technology where necessary;
   5) select and use accurately, appropriate numerical and analytical techniques to solve problems;
   6) recognise and understand a range of technological problems and select suitable techniques for solving them.

D. Practical and/or professional skills – On completion of this degree you will be able to:
   1) analyse, design, evaluate and/or test business computing systems, using appropriate simulation and modelling tools where appropriate;
   2) plan and organise yourself and your work appropriately, including keeping systematic records of work in progress and outcomes;
   3) demonstrate the ability to undertake on-going learning in order to keep up to date with business computing;
   4) identify and address the ethical, social and legal issues that may arise during the development and use of business computing systems;
   5) use appropriate professional tools to support your work.
<table>
<thead>
<tr>
<th>Codes:</th>
<th>Knowledge and Understanding</th>
<th>Cognitive Skills</th>
<th>Key Skills</th>
<th>Practical/Professional Skills</th>
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<td>CSC 105</td>
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<td>Knowledge and Understanding</td>
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<td>Key Skills</td>
<td>Practical/Professional Skills</td>
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<td>Key Skills</td>
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<td>MAN 210</td>
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</tbody>
</table>

(2) Note: All ACT student and under the US degree are required to take an ethics specific module, namely PHIL 203 – Ethics

(3) Note: Level 6 core modules are very technical in nature and the emphasis is on individual student achievement. In the case of the Thesis modules (CSC443-444) students have the option of undertaking large projects in teams and thus C2 is conditionally assessed in that case

Exit Award:
If the learning outcomes have been met, then the student is entitled to receive a BS Ordinary in Business Computing/300 credits (120 at Level 4, 120 at Level 5, 60 at Level 6)
Or transfer to BS (Hons) Business Computing (subject to validation)
BS (Hons) Business Computing/360 Credits (120 at Level 4, 120 at Level 5, 120 at Level 6)
A. Knowledge and understanding – On completion of this degree you will have:
   1) a knowledge and understanding of relevant principles and concepts underlying business computing;
   2) an ability to apply correctly common techniques for the design and development of business computing systems;
   3) an awareness of the range of situations in which business computing systems are used and the ways in which people interact with them;
   4) an appreciation of the ethical, social and legal issues that can be associated with the deployment of business computing systems;
   5) an awareness of major trends in business computing and of the implications of these trends;
   6) the ability to analyse Business Processes and be able to apply understanding in the areas of: Accounting, Finance, Management and Marketing.

B. Cognitive skills – On completion of this degree you will be able to:
   1) apply correctly key business computing concepts in a range of contexts;
   2) apply appropriate techniques and tools for abstracting, modelling, problem-solving, designing and testing business computing systems;
   3) compare and contrast, specifications and implementations of business computing systems and simple hardware systems;
   4) reflect on what you achieve in your studies, and how you might improve your performance.

C. Key skills – On completion of this degree you will be able to:
   1) communicate information, arguments and ideas effectively, using the styles and language appropriate to your subject, purpose and audience;
   2) work in a group, communicating effectively in a distance setting where the communication is computer-mediated;
   3) work independently, planning, monitoring and reviewing your own learning;
   4) find, assess and use information from a variety of sources, using information technology where necessary;
   5) use appropriate numerical and analytical techniques to solve problems;
   6) understand a range of technological problems and apply suitable techniques for solving them.

D. Practical and/or professional skills – On completion of this degree you will be able to:
   1) analyse, design, evaluate and/or test business computing systems;
   2) recognise and record your skills and knowledge to support your personal and/or your career goals;
   3) demonstrate the ability to undertake on-going learning in order to keep up to date with business computing;
   4) identify and explain the ethical, social and legal issues that may arise during the development and use of business computing systems;
   5) use ICT tools and numerical skills, as appropriate, to help you learn effectively.
<table>
<thead>
<tr>
<th>Codes: T = taught; D = developed; A = assessed</th>
<th>Knowledge and Understanding</th>
<th>Cognitive Skills</th>
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<tbody>
<tr>
<td>A1 A2 A3 A4 A5 A6 B1 B2 B3 B4 C1 C2 C3 C4 C5 C6 D1 D2 D3 D4</td>
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<tr>
<td><strong>Level 4 Compulsory modules</strong></td>
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<tr>
<td>CSC 105</td>
<td>TA</td>
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<td>CSC 215</td>
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<tr>
<td>Math 115</td>
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<td>CSC 205</td>
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<td>CSC 107</td>
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<td><strong>Level 5 Compulsory modules</strong></td>
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<td>CSC 450</td>
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</tbody>
</table>

Exit Award:
If the learning outcomes have been met, then the student is entitled to receive a Diploma of Higher Education in Business Computing/240 credits (120 at Level 4, 120 at Level 5)
A. Knowledge and understanding – On completion of this degree you will have:
   1) an understanding of some fundamental principles, concepts and techniques underlying business computing;
   2) an awareness of the range of models and languages to support the analysis and design of business computing systems;
   3) an awareness of the range of situations in which business computing systems are used and the ways in which people interact with them;
   4) an awareness of the ethical, social and legal issues that can be associated with the deployment of business computing systems;
   5) an awareness of major trends in business computing and of the implications of these trends.
   6) an awareness of Business Processes and be able to demonstrate understanding in the areas of: Accounting, Finance, Management and Marketing

B. Cognitive skills – On completion of this degree you will be able to:
   1) apply key concepts from business computing in specified contexts;
   2) apply appropriate techniques and tools for, problem-solving, designing and testing business computing systems;
   3) carry out a project in business computing that applies and extends your knowledge and understanding;

C. Key skills – On completion of this degree you will be able to:
   1) communicate information, arguments ideas and issues clearly and in appropriate ways;
   2) work in a group, communicating effectively in a distance setting where the communication is computer-mediated;
   3) work independently, planning, monitoring, reflecting on and improving your own learning;
   4) find information from a variety of sources, using information technology where necessary;
   5) use appropriate numerical techniques to solve problems.
   6) apply suitable techniques to solve simple business computing problems.

D. Practical and/or professional skills – On completion of this degree you will be able to:
   1) develop and test technology simple business computing systems;
   2) plan and organise yourself and your work appropriately;
   3) undertake ongoing learning in order to keep up to date with business computing;
   4) identify the ethical, social and legal issues that may arise during the development and use of business computing systems;
   5) use ICT tools and numerical skills, as appropriate, to help you learn effectively.
### Codes:
- **T** = taught;
- **D** = developed;
- **A** = assessed

<table>
<thead>
<tr>
<th>Knowledge and Understanding</th>
<th>Cognitive Skills</th>
<th>Key Skills</th>
<th>Practical/Professional Skills</th>
</tr>
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<tr>
<td>A1  A2  A3  A4  A5  A6</td>
<td>B1   B2   B3   B4</td>
<td>C1   C2  C3  C4  C5  C6</td>
<td>D1   D2  D3  D4</td>
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</table>

#### Level 4 Compulsory modules

|             | A1 | A2 | A3 | A4 | A5 | A6 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 | C5 | C6 | D1 | D2 | D3 | D4 |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| CSC 105     | TA | TA | TA |    |    |    | TA |    |    |    | TA |    |    |    |    | TA | D  | TA | D  | D  |
| CSC 215     | TA | TA |    | TA | TA |    | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | D  | D  | D  |
| Math 115    | TA |    |    | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | D  | D  | D  |
| CSC 205     | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | D  | D  | D  |
| CSC 107     | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | D  | D  | TA | TA |
| CSC 106     | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | D  | D  | D  |

#### Level 4 Optional modules

|             | A1 | A2 | A3 | A4 | A5 | A6 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 | C5 | C6 | D1 | D2 | D3 | D4 |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| ECON 101    | TA | D  | D  | TA |    |    | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | D  | D  | D  |
| MKTG 101    | TA | D  | D  | TA |    |    | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | D  | D  | D  |
| ACC 101     | TA | D  | TA |    |    |    | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | D  | D  | D  |
| MAN 101     | TA | D  | D  | TA |    |    | TA | TA | TA | TA | TA | TA | TA | TA | TA | TA | D  | D  | D  |

**Exit Award:**

If the learning outcomes have been met, then the student is entitled to receive a Certificate of Higher Education in Business Computing/120 credits at Level 4
7. Module specifications

Below you see the module specifications of the mathematics and computing modules offered by the Division validated by the OU. For the business modules, that are part of this program, please refer to the relevant Business degree handbooks. A complete listing of all the modules offered by the college is available in the College Catalogue located on the ACT website (www.act.edu)

**Computer Science 105: Introduction to Programming I – Structured Programming**

<table>
<thead>
<tr>
<th>1. Factual Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module title</strong></td>
</tr>
<tr>
<td><strong>Level</strong></td>
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<tr>
<td><strong>Instructor</strong></td>
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<td><strong>Module Type</strong></td>
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<td><strong>Credit value</strong></td>
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<td><strong>Total learning hours</strong></td>
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<tr>
<td><strong>Office</strong></td>
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<tr>
<td><strong>Contact Hours</strong></td>
</tr>
<tr>
<td><strong>Module type</strong></td>
</tr>
<tr>
<td><strong>Credit value</strong></td>
</tr>
<tr>
<td><strong>Total learning hours</strong></td>
</tr>
<tr>
<td><strong>Office hours</strong></td>
</tr>
</tbody>
</table>

2. Rationale for the module and its links with other modules

This is an introduction to computing and computer programming using the Java or C language. It is one of the two options available for all students to satisfy the mandatory 1st year computing course requirement (the other option is CS101). It is the only option for those students interested in keeping their options open for a Computer Science major. The course is designed for students who have no prior experience in programming, just some basic exposure to computers as users.

3. Aims of the module

Students are introduced to the basic elements of computing hardware, information technology and computer programming. Programming is explained, demonstrated and practiced using the Java or C programming language. Ultimately the course aims to advance beyond basic computing skills towards software engineering, instructing students to develop autonomy as sophisticated computer users and programmers.

4. Pre-requisite modules or specified entry requirements

None. It is expected that that students have already had some exposure to a windows-based graphical user interface computing environment.
8. Indicative content.

**Hardware and Software (approx. 2 weeks)**
- General computer science topics.
- Analog and binary signals.
- Machine language and high level languages.

**Theory of Programming (approx. 2 weeks)**
- Compilers
- Algorithms
- Problem Decomposition – Stepwise Refinement

**Java Programming (rest of the semester)**
- How to run Java programs.
- Translating Java source code into bytecodes.
- How byte codes are interpreted.
- How to create a Java program.
- Writing a program
- JAVA variable types
- Storing and changing values in variables
- Selection statements
- Repeating actions with loops
- Using arrays
1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>Computer Science 106 - Introduction to Programming II – Object Oriented Programming</th>
<th>Level</th>
<th>4</th>
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<tr>
<td>Module tutor</td>
<td>Dr. Alexander Astaras</td>
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<td>15</td>
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<tr>
<td>Module type</td>
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<td>Notional learning hours</td>
<td>150</td>
</tr>
</tbody>
</table>

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

The course aims to refine the participants' fundamental programming skills. It build upon CS105 (Introduction to Programming I) and serves as preparation for CS215 (Data Structures). It is based on the Java programming language.

3. Aims of the module

The module provides a systematic coverage of Object Oriented Modeling and Applications. Topics include Object Models, Object Class Design, Inheritance and Polymorphism, Software Reuse with Classes, Application Modeling, Simulation with Object Classes, and Business Process Modeling with Objects.

Object-oriented programming (OOP) is a revolutionary concept that changed the rules in computer program development. OOP is organized around "objects" rather than "actions", data rather than logic. Historically, a program has been viewed as a logical procedure that takes input data, processes it, and produces output data. The programming challenge was seen as how to write the logic, not how to define the data. Object-oriented programming takes the view that, "what we really care about:”, are the objects we want to manipulate rather than the logic required to manipulate them.

The module expands on the material covered in CS105 with the following aims:
- Further cultivation of algorithmic thinking and refinement of existing procedural programming skills
- Familiarization with the Object Oriented programming methodology

- Exposure to Java classes for building graphical interfaces and other extensions

4. Pre-requisite modules or specified entry requirements

CS105

8. Indicative content.

Functions and modules
- Methods
- Libraries and clients
- Recursion

Object Oriented Programming Methodology
- Data types
- Creating data types
- Inheritance
- Variable access control

- Polymorphism and Interfaces
- Testing and debugging
- Exception handling

Interface design
- Event handling
- Listeners
- Layout classes
- Inheritance
1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 107 – Digital Media Toolkit</th>
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<tbody>
<tr>
<td>Module tutor</td>
<td>Misirlis Nikolaos</td>
</tr>
<tr>
<td>Level</td>
<td>4</td>
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<tr>
<td>Mode of delivery</td>
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<tr>
<td>Notional learning hours</td>
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<td>Mode of delivery</td>
<td>taught</td>
</tr>
<tr>
<td>Credit value</td>
<td>15</td>
</tr>
</tbody>
</table>

2. Rationale for the module and its links with other modules

This module is an introduction to digital multimedia. All media components (digital images/graphics, text, animation, sound and digital video) are introduced and their parameters defined and studied. Software multimedia development tools necessary for the creation or capture of digital media are presented and students acquire hands-on experience with a package for each media category. Hardware essential for the capture/creation of the media is also presented. Multimedia project design parameters are examined and applied to a student capstone project. The main software used in this module will be Adobe Bridge, Adobe Photoshop, Adobe Premier Pro, Adobe Camera Raw and Audacity. Other software may be used, which will be announced at the beginning of the module.

3. Aims of the module

After completion of this module:

- The student will learn the definitions and the parameters of digital media including; digital picture/graphics, text, sound and digital video.
- The student will obtain hands-on experience with multimedia development tools.
- The student will learn the design principles of a Digital Media project.
- The student will apply the knowledge and skills learned above in a capstone multimedia project.
- The student will learn the issues around copyright, intellectual property, including copyright and trademarks, and apply what learned in their projects issues.
- The student will learn to manage and organize digital material.
- The student will learn the issues around direction, artistic motion and lightning techniques, creating digitales and scripts as well as story-telling techniques.

4. Pre-requisite modules or specified entry requirements

CS101 or permission by instructor – CS 101 is NON OU Validated

8. Indicative content.

Digital Image (DI) Theory and concepts

- DI technical specification regarding:
  - File structure
  - Bit Depth
  - Storage size
  - Creation/Capture/Export
8. Indicative content.

Digital Video (DV) Theory and concepts
- DV technical specification regarding:
  - File types
  - Data rate
  - Storage size
  - Creation/Capture/Export

Digital Audio (DA) Theory and concepts
- DV technical specification regarding:
  - File types
  - Data rate
  - Storage size
  - Creation/Capture/Export

Ethical and Legal Issues regarding Media and its Distribution

Photoshop
1. Work Area
2. Correcting and Enhancing Digital Photographs
3. Selections
4. Layer Structure
5. Masks and Channels
6. Typographic Design
7. Vectors and Vector Drawing Techniques
8. Compositing
9. Editing Video
10. Editing Audio
11. Painting and the Mixer Brush
12. Preparing files for the Web
13. Producing and Printing Consistent Color

Premier Pro
1. Work Area
2. Projects and their proper set-up
3. Importing and Organizing Media
4. Video Editing Essentials
5. Clips-Sequences and Markers
6. Transitions
7. Editing Techniques
8. Title Creations
9. Exporting Clips and Sequences
10. Bezier techniques for motions on clips
11. Recording and processing audio

Other Digital Media capture and processing software might be presented/studied/used as appropriate
1. Factual information

| Module title | COMPUTER SCIENCE 205 – Business Data Management |
| Module tutor | Christodoulou, Chris |
| Level | 4 |
| Module type | Taught |
| Credit value | 15 |
| Mode of delivery | Taught |
| Notional learning hours | 150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes |

2. Rationale for the module and its links with other modules

The purpose of COMP SCI 205 is to introduce the idea of business data management, data modelling, and processing methodologies with the use of standalone design tools and personal databases. It aims at fostering proper data design through the relational methodology and developing all necessary data processing and presentation skills.

3. Aims of the module

The aims of this module are to:

- Define the role of Systems Analyst and Database designer.
- Explain System Analysis and interpersonal communication skills that the System Analyst must have
- Explain Project Management and discuss tools that the system analyst must have
- Explain the Methodologies that are used for Systems Analysis and Database Design
- Explain the various tools that certain methodologies use

Provide students the opportunity to work on the most popular database (Oracle), in a project in order to implement the taught methodologies.

4. Pre-requisite modules or specified entry requirements

CS 105

8. Indicative content.

This module deals with numerous forms of Business Data employed in monitoring business operations, including Data Analysis, Data Design, Table Design and learning how to implement them using two popular database programs.
Computer Science 206: Web Development

1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 206 – Web Development</th>
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<tbody>
<tr>
<td>Module tutor</td>
<td>Dr. Karamatsouki Aggeliki</td>
</tr>
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<td>Level</td>
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<td>Notional learning hours</td>
<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
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</table>

2. Rationale for the module and its links with other modules

COMP SCI 206 is an introductory module for beginning web designers. We will explore some essential concepts related to the creation of effective web sites. In the last portion of the module we will concentrate on client-side scripting using the programming language JavaScript.

3. Aims of the module

This module aims at introducing students the basic web design guidelines, Fundamentals of Hyper Text Markup Language (HTML), and how to use a Simple HTML Editor as well as Web Authoring Tools. Also, one of the main goals of the module will be to understand what scripting languages are and to be able to develop scripts.

4. Pre-requisite modules or specified entry requirements

CSC 105, CSC 106

8. Indicative content.

<table>
<thead>
<tr>
<th>Web Design Guidelines</th>
<th>Web Authoring Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>o What is the World Wide Web</td>
<td>o Setting Up a Web site</td>
</tr>
<tr>
<td>o Basic Design Principles</td>
<td>o Page Layout, CSS, Templates, Navigation</td>
</tr>
<tr>
<td>o Interface &amp; Navigation</td>
<td>o Working with Texts, Lists and Tables</td>
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<tr>
<td>o Good &amp; Bad Design</td>
<td>o Working with Images</td>
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<tr>
<td>o Colour on the WWW</td>
<td>o Adding Interactivity (Flash, Forms)</td>
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<tr>
<td>Validation &amp; Assessment</td>
<td>o Working with Online Data</td>
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<tr>
<td>o Validating HTML and CSS</td>
<td>o Building Dynamic Pages with Data</td>
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<tr>
<td>o Accessibility &amp; Usability</td>
<td>o Working with Code</td>
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<tr>
<td>o Web site optimization</td>
<td>o Publishing to the Web</td>
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<tr>
<td>HTML &amp; CSS basics</td>
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<tr>
<td>o HTML source document, tags</td>
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<tr>
<td>o Lists, Tables, Links, Images, Graphics</td>
<td>Webpack, Babel, Gulp, Grunt</td>
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<tr>
<td>o Intro to CSS</td>
<td>o Adding Interactivity (ES6 modules)</td>
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<td>o CSS value and Common CSS Properties</td>
<td>o Building Dynamic Pages with Data</td>
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<td>HTML5 &amp; CSS3</td>
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<tr>
<td>o New elements</td>
<td>o Working with Code</td>
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<tr>
<td>o Multimedia, Canvas element</td>
<td>o Publishing to the Web</td>
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<tr>
<td>o Forms and Styles</td>
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JavaScript

| o Introduction             | o Variables |
| o Variables               | o Operators  |
| o Operators               |             |
1. Factual information

<table>
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<tr>
<td>Module tutor</td>
<td>Dr. Alexander Astaras</td>
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<tr>
<td>Credit value</td>
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<td>Taught: Lecture/guided discussion</td>
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<td>Notional learning hours</td>
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2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

The course aims to refine the participants’ fundamental programming skills. It build upon CS105 (Introduction to Programming I) and serves as preparation for CS215 (Data Structures). It is based on the Java programming language.

3. Aims of the module

The module provides a systematic coverage of Object Oriented Modeling and Applications. Topics include Object Models, Object Class Design, Inheritance and Polymorphism, Software Reuse with Classes, Application Modeling, Simulation with Object Classes, and Business Process Modeling with Objects.

Object-oriented programming (OOP) is a revolutionary concept that changed the rules in computer program development. OOP is organized around "objects" rather than "actions", data rather than logic. Historically, a program has been viewed as a logical procedure that takes input data, processes it, and produces output data. The programming challenge was seen as how to write the logic, not how to define the data. Object-oriented programming takes the view that, “what we really care about:”, are the objects we want to manipulate rather than the logic required to manipulate them.

The module expands on the material covered in CS105 with the following aims:
- Further cultivation of algorithmic thinking and refinement of existing procedural programming skills
- Familiarization with the Object Oriented programming methodology
- Exposure to Java classes for building graphical interfaces and other extensions

4. Pre-requisite modules or specified entry requirements

CS105

8. Indicative content.

<table>
<thead>
<tr>
<th>Functions and modules</th>
<th>Interface design</th>
</tr>
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<tbody>
<tr>
<td>• Methods</td>
<td>• Event handling</td>
</tr>
<tr>
<td>• Libraries and clients</td>
<td>• Listeners</td>
</tr>
<tr>
<td>• Recursion</td>
<td>• Layout classes</td>
</tr>
<tr>
<td>Object Oriented Programming Methodology</td>
<td>• Inheritance</td>
</tr>
<tr>
<td>• Data types</td>
<td></td>
</tr>
<tr>
<td>• Creating data types</td>
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</tr>
<tr>
<td>• Inheritance</td>
<td></td>
</tr>
<tr>
<td>• Variable access control</td>
<td></td>
</tr>
<tr>
<td>• Polymorphism and Interfaces</td>
<td></td>
</tr>
<tr>
<td>• Testing and debugging</td>
<td></td>
</tr>
<tr>
<td>• Exception handling</td>
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</table>
Computer Science 219: Video Game Design

1. Factual information

<table>
<thead>
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<th>COMPUTER SCIENCE 219 - Video Game Design</th>
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<tr>
<td>Module tutor</td>
<td>Brian Morris</td>
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<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
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</table>

2. Rationale for the module and its links with other modules

This module introduces the critical study of computer video games and the professional practice of game design. Through readings, discussions, research, and practical “hands-on” projects, students will better understand the current market for games and simulations and develop the fundamental skills necessary to enter the international computer games industry. Although the commercial video game pipeline will be discussed, the actual production framework for the class will mirror a "Indie" game team "prototype game level" development.

3. Aims of the module

Students will be expected to fill multiple roles in the production process, and gain hands-on experience in the collaborative processes of game design, project management, scripting, content creation pipeline, in game animation, and play-testing.

4. Pre-requisite modules or specified entry requirements

CSC105, CSC 106, CSC 107

8. Indicative content.

**Video Game Theory and Concepts**

- Game Types
- Anatomy of a Game
- The Key Components of Video Games
- Structure of a Video Game

**Design Components and Processes**

- The Stages of the Design Process
- The Game Design Team Roles
- The Game Design Documents

**Game-Play**

**Core Mechanics**

**Game Balancing**

**General Principles of Level Design**

**Blender or 3D-MAX (or other)**

- 3d Modelling and Materials

**The Game industry**

- Game Engines
- Game delivery environments

**Scripting in Unity**

- Player Camera Controllers
- Terrains
- Prefabs
- Audio
- Animation
- Particles
- AI and Enemies

**Unity 3d Game Engine (or Similar engine)**

- Unity 3d concept
- Unity3d User Interface (GUI)
- The 3d work space
- Unity Game Physics
- Scripting in Unity
- Player Camera Controllers
- Terrains
- Prefabs
### 8. Indicative content.

<table>
<thead>
<tr>
<th>Game Assets in Unity 3d (or similar engine)</th>
<th>Audio</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Working with 3d assets in Unity</td>
<td>• Animation</td>
</tr>
<tr>
<td>• Imported Assets and Packages</td>
<td>• Particles</td>
</tr>
<tr>
<td>• Material and Textures</td>
<td>• AI and Enemies</td>
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## 1. Factual information

<table>
<thead>
<tr>
<th><strong>Module title</strong></th>
<th>COMPUTER SCIENCE 306 – Advanced Web Development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module tutor</strong></td>
<td>Dr. Karamatsouki Aggeliki</td>
</tr>
<tr>
<td><strong>Level</strong></td>
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<td><strong>Module type</strong></td>
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<td><strong>Mode of delivery</strong></td>
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<tr>
<td><strong>Notional learning hours</strong></td>
<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
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</tbody>
</table>

## 2. Rationale for the module and its links with other modules

COMP SCI 306 builds upon the skills and knowledge about creating and publishing Web pages and sites taught in CS 206. It also introduces students to advanced web development areas, required for students interested in pursuing a career in web site design.

## 3. Aims of the module

This module aims mainly on client-side scripting using the programming language JavaScript. The objective will be to understand what scripting languages are and to be able to develop scripts. The module will also offer an introduction to jQuery library, Asynchronous JavaScript and XML (AJAX), basically showing the benefits of their use and applying it to certain programming tasks. In the last portion of the module, students will gain a practical knowledge about the currently most used web content management environments. By combining lectures with seminar discussions and extensive hands-on experiences the course will introduce the students both to the applied aspects of content management technologies but also to the theoretical issues involved.

## 4. Pre-requisite modules or specified entry requirements

CSC 206

## 8. Indicative content.

### JavaScript
- Advanced Techniques
- Detect visitor’s Browser & Platform
- JavaScript Validation
- jQuery library
- jQuery UI & plugins

### Asynchronous JavaScript and XML
- Basics
- Ajax Frameworks
- XML/CSS into Ajax Applications

### Using Content Management Systems
- Intro to CMS
- CMS Admin, Site Organization
- Creating Editing Articles, Menus, Modules
- Using Templates
- Extending CMS, SEO Techniques
1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 312 – Database Management Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module tutor</td>
<td>Kostis Vezerides</td>
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<tr>
<td>Level</td>
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<td>Notional learning hours</td>
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</table>

2. Rationale for the module and its links with other modules

The purpose of COMP SCI 312 is to offer a systematic coverage of modern Database Computing theory and technology. Topics include: Relational Algebra, Data Modelling, Database Design, Client-Server Database Management Systems, Interface Design, trends in Database Systems, combination of Object Oriented Modelling and Relational Databases. This is a module in continuance of the CS 205 Business Data and it educates students how to create and maintain a fully functional relational database. This knowledge will be applied on CS 325, CS412, CS 422 and CS 444 where students are required to create and/or alter various databases, used along for programming assignments.

3. Aims of the module

The aims of this module are to:
Teach students what Client-Server Database Management System is, and
To use simple and advanced SQL along with PL/SQL programming features such as IF statements, loops, stored functions, procedures, tables, cursors, packages, triggers
To create and maintain an oracle database.
Microsoft Access and/or SQL Navigator for browsing objects and databases.
SmartDraw is used for ERD’s.
Apex, SQL Plus and SQL Navigator are used as user interface of the oracle database
Students develop technical, analytical, and business skills that support the pursuit of professional careers and advanced computer science study.

4. Pre-requisite modules or specified entry requirements

CS 205 or permission by the Department.

8. Indicative content.

The module main focus is on teaching SQL and PL/SQL programming languages for oracle databases. Advanced query capabilities constructs are described using Oracle SQL and PL/SQL. The theoretical foundation for using these capabilities is presented. Performance discussed including indexing, key definitions, DE normalized databases and triggers, and data constraints. The role of application ease of use, query optimization, and system performance is discussed.
## Computer Science 321: Operating Systems

### 1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 321 – Operating Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module tutor</td>
<td>Kostis Vezerides</td>
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<tr>
<td>Notional learning hours</td>
<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
</tr>
</tbody>
</table>

### 2. Rationale for the module and its links with other modules

The module deepens understanding of how contemporary computing systems are structured and, in particular, supported by an Operating System. It is a culmination module within the Computing Systems programme thread. The module follows CS230-Introduction to Systems Programming and CS310-Computer Architecture. The module is frequently updated in view of rapid technological developments and their implications to Operating Systems specifications. The module is followed by CS421 – Systems Security as well as any future module covering the subject at the advanced level.

### 3. Aims of the module

Operating Systems are the brain of any computing system. They handle the body/DNA (hardware) as well as behaviour (usage of system by user). Following rapid to revolutionary technological developments the field of Operating Systems also undergoes tremendous changes, which constantly evolve the conception of an OS and of course the technological challenges involved in its implementation.

The module aims at outlining the role of an OS in a diachronic way while comparing and contrasting design choices spanning the evolution of the field. It aims at defining fundamental needs that a von Neumann machine has from the Operating System in order to be functional, optimal and attractive to the user.

The module explains Operating Systems architecture and examines trade-offs involved in different, evolving systems. It further examines diachronic as well as contemporary issues involved in Operating System design by comparing and contrasting relevant design and algorithmic choices.

The module involves lab work: Communication with the OS at a low level via a Linux shell and programming tasks addressing aspects of Operating System design and implementation.

### 4. Pre-requisite modules or specified entry requirements

CS 215, CS 310, STAT 205 or permission by the Department

### 8. Indicative content.

- Computer-System Structures
- Operating-System Structures
- Processes
- Threads
- CPU Scheduling
- Process Synchronization
- Deadlocks
- Memory Management
- Virtual Memory
- File-System Interface
- File-System Implementation
- I/O Systems Mass-Storage Structure


### 1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 322 – Computer Networks I</th>
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<tbody>
<tr>
<td>Level</td>
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<tr>
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</table>

### 2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

COMP SCI 322 will address the principles, architectures and protocols that have gone into the development of modern networks from Local Area Networks to the Internet.

### 3. Aims of the module

This module aims to provide the student with the knowledge of how computer networks are designed, engineered and operated. This includes knowledge of the fundamental algorithms used in the management of both resources and traffic and how these algorithms may interact with application programs. Instruction includes, but is not limited to network terminology and protocols, network standards, LANs, WANs, OSI models, cabling, cabling tools, routers, router programming, star topology, and IP addressing. The student will study and design networks using Ethernet, TCP/IP Addressing Protocol, and dynamic routing. Particular emphasis is given to the use of decision-making and problem-solving techniques in applying science, mathematics, communication, and social studies concepts to solve networking problems.

### 4. Pre-requisite modules or specified entry requirements

CS 105.

### 8. Indicative content.

- Communicating over the Network
- Network Layered Model
- IP Addressing and Subnetting
- Ethernet
- Planning and Cabling Networks
- Routing and Packet Forwarding
- Static/Dynamic Routing
## Computer Science 325: Distributed Applications

### 1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 325 – Distributed Applications</th>
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<tr>
<td>Module tutor</td>
<td>Mr. Chris Christodoulou</td>
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<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
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</table>

### 2. Rationale for the module and its links with other modules

The purpose of CS 325 is to examine in detail the software and hardware technologies prevalent in the Internet and provide an introduction to the principles and methods for creating distributed on-line client/server applications that are the basis for electronic commerce as it is conducted over the Internet. Methods and tools such as HTML, the Common Gateway Interface, PHP, database connectivity tools and MySQL are presented. Coverage is also given to emerging standards for information exchange, encryption and validation.

### 3. Aims of the module

The aims of this module are to teach students the technological background as well as programming languages useful in developing and deploying internet-based applications with dynamic content. Students will learn the difference between server-side and client-side programming, the overall architectural framework of such application systems and the differences between emerging distributing technologies.

### 4. Pre-requisite modules or specified entry requirements

CS 105

### 8. Indicative content.

| PHP: | Variables, Data types, Operators, Expressions Control flow statements, Functions Arrays, Objects |
| MySQL: | MySQL Data types Basic sql statements Transactions and Stored Procedures Integration with PHP |
1. **Factual information**

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 330 – Mobile Robotics Programming</th>
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<tr>
<td>Module tutor</td>
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</table>

2. **Rationale of the module within the degree scheme/Prerequisites/other entry requirements**

The primary difference between robots and other types of computing devices is their ability to physically interact with their environment, rather than to simply gather, process, store and communicate data. This is particularly apparent in the case of autonomous and semi-autonomous mobile robots: they face the challenge of acquiring data from their surroundings, selecting their own navigation waypoints and dynamically altering their course of action to account for obstacles, power supply restrictions and unexpected events. In this course theoretical instruction is combined with experiential learning and challenge driven software development.

Students participating in this course are challenged individually and in teams to build the hardware chassis and software control algorithms for mobile robots. The course assumes a basic background in structured programming and proceeds with an introduction to both visual and text source code robotic programming (C, RobotC); basic electronics circuit design and troubleshooting; microcontroller programming; sensor data acquisition algorithms; actuator control; robotic navigation and obstacle avoidance; basic sensor data fusion; and concludes with a final robotic design challenge which integrates all aforementioned knowledge and skills. This course builds on structured programming skills developed in CS105: Introduction to Programming.

3. **Aims of the module**

Upon completion of this summer course module, participants should expect to be able to:

- Jointly design software and mechanical hardware (robotics chassis), combining paper sketches and experimentation
- Employ iterative and incremental engineering design practices
- Build, program and troubleshoot mobile robots with a variety of roaming behaviours
- Design for unforeseen real-world circumstances, producing robust robotic code that anticipates and exploits them
- Program a microcontroller board to sample and control a variety of sensors and actuators
- Optimize programming code and hardware design while competing in robotic challenges
- Program and debug software to intelligently control mobile robotic systems
- Design under pressure of restricted resources, e.g. time, power supply, space, weight
- Combine and benefit from group brainstorming, collaborative creativity and critical thinking
- Design experiments to prove, characterize, extract and optimize performance parameters from each robot prototype

4. **Pre-requisite modules or specified entry requirements**

CS 105: Introduction to Programming
### 8. Indicative content.

- Structured programming principles (review)
- Microcontroller programming using C
- Sensors and actuators
- Circuit troubleshooting
- Robotic shell design using Lego bricks
- Higher level programming for robotic control
- Mobile robotic algorithm design using RobotC
- Sensor data fusion
- Debugging and troubleshooting techniques
- Experimental characterization of robotic design
- Collaborative iterative robotic design
- Challenge-driven robotic design
1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 333 – Computer Networks II</th>
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</thead>
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<td>Notional learning hours</td>
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</table>

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

This module is offered as a Level 6 Elective to students that have passed module CS322 (Computer Networks I). The module builds on the material learned in CS322 and expands the students’ knowledge and understanding to more advanced and complex network concepts and designs. The focus is mainly routing and switching in LANs and WANs, but other major areas of networks like wireless, security and Broadband technologies. Completing CS322 and CS 333 a student is eligible to take the exam for the Cisco CCNA certification.

3. Aims of the module

The aims of the module are to expand students’ knowledge in modern day networks. There are three primary goals; expand the strong foundations for Local Area Networks built in CS322, introduce Wide Areas Network Design and Technologies, and provide the fundamentals of trending networking areas including, but not limited to, wireless and security.

4. Pre-requisite modules or specified entry requirements

CS 322

8. Indicative content.

- Switching Fundamentals
- Advanced Routing Protocols
- Wide Area Network and Broadband Technologies
- Securing Connectivity
- Monitoring and Troubleshooting Networks
Computer Science 401 - Quantitative Operations Management

1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 401 - Quantitative Operations Management</th>
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<tr>
<td>Module tutor</td>
<td>Dr. Ioannis Mallidis</td>
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</tbody>
</table>

2. Rationale for the module and its links with other modules

This module will be employed in order to facilitate the interconnectivity between theory and practice, through the use of Operations Management tools in realistic case studies.

3. Aims of the module

The aims of the module are to provide students with the required tools and analytical/quantitative skills of Operations Management (OM) and Econometrics, in order to enable them to comprehensively understand, design, model, and critically evaluate business strategies, and policy formulations.

Specifically, the course will cover fundamental OM tools and principles, through their applications and cases, such as:

- Project Management,
- Forecasting,
- Supply Chain and Inventory Management, and
- Financial Management

4. Pre-requisite modules or specified entry requirements

Entry requirements involve the documented knowledge in the basics of linear programming, time-series forecasting, probabilities and financial analysis. Prerequisites: Math 101 - Finite Math, STAT 205 - Statistics I, MAN 101 - Intro to Management.

Section 1: Operations Management - The Basics (Chapter 1)

- What is Operation’s Management (OM)
  1. Whys study OM?
  2. What Operations Managers do?
  3. What are the Trends in OM?
  4. What are the Ethics and Social Responsibility Issues in OM?

Section 2: Linear and Non-Linear Optimization under OM (Instructor’s Material)

- Introduction to Linear Programming
  1. Capacitated Facility Location Problem
  2. Location Assignment Problem under layout Planning
- Introduction to Non-Linear Programming-Basics – Inventory Theory

Section 3: Project Management (Chapter 3)

- Introduction to Project Management
<table>
<thead>
<tr>
<th>Pre-requisite modules or specified entry requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Importance of Project Management</td>
</tr>
<tr>
<td>2. Work Breakdown Structure</td>
</tr>
<tr>
<td>3. Project Scheduling-Gantt Chart</td>
</tr>
</tbody>
</table>

Section 4: Demand Forecasting (Chapter 4)
- Introduction to Forecasting
  1. Forecasting and its importance
  2. Seven Steps in a Forecasting System
  3. Forecasting Approaches
  4. Time-Series Forecasting

Section 5: Supply Chain Management (Chapters 8, 11, 12)
- Introduction to Supply Chain Management
  1. Transportation Problem
  2. Push inventory planning system- Deterministic Economic Order Quantity Model (EOQ)
  3. Pull inventory planning system-Just in time

Section 6: Examples of Application of Linear Programming in Finance (Instructor’s Material)
  1. Urban Renewal Model.
  2. Currency Arbitrage Model.
  3. Loan Policy Model.
**Computer Science 412: Object Oriented Design Patterns**

---

### 1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 412 – Object Oriented Design Patterns</th>
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</thead>
<tbody>
<tr>
<td>Module tutor</td>
<td>Kostis Vezerides</td>
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<tr>
<td>Level</td>
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<td>Mode of delivery</td>
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<td>Credit value</td>
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<tr>
<td>Notional learning hours</td>
<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
</tr>
</tbody>
</table>

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### 2. Rationale for the module and its links with other modules

The module revisits Object Oriented application development methodology at the Senior level, examining its effectiveness in the life cycle of professional applications and software reuse through the adoption of Object Oriented Design Patterns. It presupposes the knowledge earned through the introductory line of the Programming Fundamentals programme thread and follows level 5 modules relating to Data Modelling (CS 312) and Systems Design (CS450) while specialising them within the context of Web Development. Currently CSC 325 (Distributed Systems) is a necessary prerequisite concerning web deployment technologies.

The module mostly emphasizes the employment of OO concepts to Web Development yet it is of general enough nature for a level 6 module as the design patterns examined are applicable to a wide range of technologies and application domains.

### 3. Aims of the module

Major aims of the module are to teach object oriented modelling and reusable or ad hoc class design. The major features of OOP will be reviewed along with examples and their utility in building reliable applications will be discussed. UML will be used for modelling and connection of the formal models with language-specific class features will be elaborated. Design patterns will be examined in conjunction with OO language features and their utility in reliable application development will be thoroughly investigated.

The module focuses around development of Web applications and the tools chosen will be suitable for this class of applications. The MVC design pattern will be presented and a development environment supporting the framework will be employed throughout the second half of the semester in order to examine object orientation in each aspect of the framework. MVC is a Design Pattern in itself.

### 4. Pre-requisite modules or specified entry requirements

CS 215, CS 312, CS325 or permission by the Department.

---

### 8. Indicative content.

1. Review of Object-Oriented Concepts
2. Advanced Object-Oriented Concepts and introduction to Design Patterns
3. Design Patterns and Class Design guidelines
4. Mastering Inheritance and Composition
5. Frameworks and Reuse: Designing with Interfaces and Abstract Classes
6. Designing with Interfaces and Abstract Classes
7. Creating Object Models
8. Objects and Portable Data: XML and JSON
9. Persistent Objects: Serialization, Marshalling, Databases
10. Objects in Web Services, Mobile Apps, and Social Media
11. Model, View and Controller issues of client side architectures
1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 421 – Computer Systems Security</th>
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<tr>
<td>Module tutor</td>
<td>Karamichalis, Menelaos</td>
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</table>

2. Rationale for the module and its links with other modules

The module examines security issues in networked environments. It is a senior-level module (level 6) for the Computing Systems programme thread. It follows CS321 – Operating Systems and CS322 – Network Operating Systems and Administration. The module provides both the theoretical background (cryptography) and coverage of existing security threats and how to guard a system against them.

3. Aims of the module

The module aims at providing both a theoretical and practical background concerning issues of security in modern, networked systems. Cryptography is covered first (essentially discussions of standard algorithms). The remainder of the module focuses on techniques that can be used to safeguard real systems. Topics that are covered include Key management and credentials, Steganography and watermarking, Network security (VPNs, Firewalls, Intrusion Detection) and System Security Policies. Risk assessment and threat models as well as social engineering will be covered.

4. Pre-requisite modules or specified entry requirements

CSC 321, CSC 322 or permission by the Department.

8. Indicative content.

- Essential Encryption Algorithms
- Key management and credentials
- Steganography and watermarking
- Network security (VPNs, Firewalls, Intrusion Detection)
- System Security Policies
- Threat models.
1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 422 – Advanced Database Management Systems</th>
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<tbody>
<tr>
<td>Module tutor</td>
<td>Kostis Vezerides</td>
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<td>Level</td>
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</tbody>
</table>

2. Rationale for the module and its links with other modules

The module expands and deepens understanding of DBMS extending beyond a first year of exposure to the fundamentals. It extends CS312, which has provided the foundations on SQL and PL/SQL. Theoretical issues are examined with the intention of performance optimisation. The module aims at better equipping programme graduates towards the competitive DB market.

3. Aims of the module

This module programming languages for Oracle databases. Advanced query capabilities and procedural constructs are described using SQL and PL/SQL. The theoretical foundation for using these capabilities is presented. Performance issues are discussed including indexing, key definitions, and data constraints. The role of application development in ease of use, query optimization, and system performance is discussed. Focuses on creating and manipulating databases using SQL and PL/SQL.

The module aims to teach students to use advanced SQL statements and PL/SQL programming features such as IF statements, Loops, Stored Functions/Procedures, Tables, Cursors, Stored Packages, Stored Triggers and creating and maintaining various databases. SmartDraw and Designer of Oracle is used for ERD’s. APEX, SQL Plus and SQL Navigator, SQL Server Management Studio are used as user interface of the databases.

4. Pre-requisite modules or specified entry requirements

CS 312 or permission by the Department.

8. Indicative content.

- ERD and UML Modelling
- Practical Database Design Methods and use of Indexing Structures for Database Files
- Practical Database Design and Tuning
- Database Security and Authorization
- Enhanced Data Models (Triggers)
- Distributed Databases and Client-Server Architectures
- Emerging Technologies: XML and Internet Databases
- Data mining Concepts
- Emerging Database Technologies & Apps
## Computer Science 443: Capstone Project I (Thesis I)

### 1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 443 – Thesis I (Capstone Project I)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module tutor</td>
<td>Dr. Alexander Astaras</td>
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<tr>
<td>Level</td>
<td>6</td>
</tr>
<tr>
<td>Module type</td>
<td>Taught, Supervised Project</td>
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<tr>
<td>Credit value</td>
<td>15</td>
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<tr>
<td>Mode of delivery</td>
<td>100% face-to-face</td>
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<tr>
<td>Notional learning hours</td>
<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
</tr>
</tbody>
</table>

### 2. Rationale for the module and its links with other modules

The module is the first half of a year-long capstone project, epitomizing the four year learning experience in Business and Computing. It is designed to foster research, autonomy and synthesis of concepts learned from all other modules. This first half of the capstone project is devoted to research/analysis and design, while its second semester counterpart places emphasis on implementation and presentation.

### 3. Aims of the module

- To give students the opportunity to work in a guided but independent fashion to explore an individual problem in depth, making practical use of principles, techniques and methodologies acquired elsewhere in the module.
- To give experience of carrying out a sustained piece of individual work and in producing a dissertation.
- To enhance communication skills, both oral and written.

### 4. Pre-requisite modules or specified entry requirements

Senior Status, CSC 312, CSC 450

### 8. Indicative content.

The module deals with the definition phase of a major IT project.
1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 444 – Thesis II (Capstone Project II)</th>
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<tbody>
<tr>
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<td>Credit value</td>
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<td>Mode of delivery</td>
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</tr>
<tr>
<td>Notional learning hours</td>
<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
</tr>
</tbody>
</table>

2. Rationale for the module and its links with other modules

The module is the second half of a year-long capstone project, epitomizing the four year learning experience in Business and Computing. It is designed to foster research, autonomy and synthesis of concepts learned from all other modules. This first half of the capstone project is devoted to research/analysis and design, while its second semester counterpart places emphasis on implementation and presentation.

3. Aims of the module

To give students the opportunity to work in a guided but independent fashion to explore an individual problem in depth, making practical use of principles, techniques and methodologies acquired elsewhere in the ACT CS curriculum.

To offer the student the experience of carrying out a sustained piece of individual work and producing a dissertation. To help enhance the student's communication skills, both oral and written.

4. Pre-requisite modules or specified entry requirements

CSC 443

8. Indicative content.

The module deals with the execution and reporting phase of a major IT project. Students will enter the module having completed their project proposal in CS443. This semester will be dedicated to implementation and the systems analysis and design report.
1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 450 - Systems Analysis and Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module tutor</td>
<td>Mr. Chris Christodoulou</td>
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<tr>
<td>Level</td>
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<td>Mode of delivery</td>
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<tr>
<td>Notional learning hours</td>
<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
</tr>
</tbody>
</table>

2. Rationale for the module and its links with other modules

The module serves as a capstone for the Junior year, aiming to unify all prior knowledge from the viewpoint of Systems Analysis and Design. As students have already been exposed to various aspects of computer systems, the module introduces them to the development life cycle of real-world, professional applications.

The module introduces the waterfall model for system/application development and the formal tools employed in its various stages with emphasis in prototyping, system implementation and testing.

Students entering the course are expected to have adequate knowledge of data modelling (CS205, CS312), hardware (CS310) and networks (CS322). The knowledge acquired in this module, will be applied on CS443 and CS444 where students are required to research and create a capstone project.

3. Aims of the module

The module introduces the waterfall model for system/application development and the formal tools employed in its various stages. The objectives of the module are to:

- Provide formal tools for functional and non-functional requirements collection and documentation (ERD, UML, DFD, STD's)
- Define the role of the systems analyst and designer.
- Build project management and interpersonal communication skills that the system analyst must have.
- Explain the methodologies that are used for systems analysis and design.
- Follow through the waterfall model (and discuss deviations therefrom), presenting the relevant tools at each stage.
- Provide the problem solving background for resolving trade-offs inherent in design.
- Present principles of quality and correctness testing.
- Provide students the opportunity to work as a team of analysts and designers in a project to implement the taught methodologies.

Students develop technical, analytical and business skills that support the pursuit of professional careers and advanced computer science studies.

4. Pre-requisite modules or specified entry requirements

CS312, CS310, CS322 or permission by the Department.
The module main focus is Systems analysis where students learn problem-solving techniques to decompose a system for the purpose of studying how well those component parts work and interact to accomplish their purpose.

- Scope analysis and feasibility study.
- Requirements collection and formal tools (ERD, UML, DFD, STD).
- Design: trade-off analysis and formal tools for decision making.
- Implementation phase: actions and deviations from Waterfall model.
- Unit and System testing.
- Deployment and Maintenance.
- Project management throughout the cycle.
1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>COMPUTER SCIENCE 499 – Advanced Programming Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module tutor</td>
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<tr>
<td>Notional learning hours</td>
<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
</tr>
</tbody>
</table>

2. Rationale for the module and its links with other modules

This module teaches the fundamentals of the Microsoft .NET Platform and lay a solid foundation for all other tools on .NET technologies. The .NET Framework provides computer science students with major enhancements in object oriented features, error handling, and deployment. Enhancements that affect all .NET programming languages are also discussed. Finally, they will be introduced to the new common .NET development environment, Visual Studio .NET.

3. Aims of the module

VB.NET& Web with XML Programming will give the students the necessary information and step-by-step guidance needed to become productive with Microsoft’s popular .NET platform. This module offers a comprehensive yet approachable introduction to the .NET Framework, VB, C#, ASP.NET programming, and XML Web Services development.

4. Pre-requisite modules or specified entry requirements

CSC 312, CSC 325

5. Indicative content.

1. The .NET Platform and the Web.
   - The Pathway to Web Applications.
   - The Web Client/Server Model
   - Components of ASP.NET and the .NET Framework
   - Overview of Internet Information Server
   - Overview of ASP.NET
   - The .NET Common Language Runtime and Class Library
   - Managed Components in .NET
   - Web Services
   - Language Independence in the .NET Framework.
   - COM+ Component Services and .NET.
   - Direction and Plans for .NET

2. The VB.NET Crash Module.
   - What Is VB.NET?
   - Hello World (Yet Again)
   - Variables, Constants, and Operators
   - Modularizing Your Code—Functions and Subroutines
   - Controlling Program Flow
   - Handling Errors and Exceptions
8. Indicative content.

- Object-Oriented Programming
- Multithreaded Programming

3. Working with ASP.NET
- The Features of ASP.NET
- The Anatomy of ASP.NET Pages
- Introducing Web Forms
- VS.NET Web Applications and Other IDE Basics
- Separating Content and Code—the Code-Behind Feature
- Application Configuration
- Using HTML Controls & Web Controls
- Web Controls for Displaying and Formatting Data
- Web Controls for Creating Buttons, Inputting Text, Selecting Choices, Creating Lists
- Miscellaneous Basic Controls
- Creating a Simple ASP.NET Application
- ASP.NET Page Directives & Rich Controls
- Validation Controls. Data List Controls
- Building the XYZ Corporation Home Page. User Controls
- Saving State with the StateBag Object
- ASP.NET Intrinsic Objects.

4. Using the .NET Framework Class Library.
- Manipulating XML Data (System.Xml)
- Sending Internet E-mail (System.Web.Mail)

7. Accessing Data with ADO.NET.
- Overview of Data Access on the Web
- ADO.NET: The Next Generation of Data-Access Technology
- ADO.NET Programming Objects and Architecture
- Displaying Database Data
- Programming with the DataList and DataGrid Controls
- Working with the DataSet and DataTable Objects
- Maintaining Data Integrity with the DataRelation Class
- Using Manual Database Transactions
- Working with Typed DataSet Objects
## MATH 115: Business Calculus

### 1. Factual information

<table>
<thead>
<tr>
<th>Module title</th>
<th>MATH 115 – Business Calculus</th>
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<tbody>
<tr>
<td>Module tutor</td>
<td>Kostas Karagiannis</td>
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<tr>
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</table>

### 2. Rationale for the module and its links with other modules

The purpose of MATH 115 is to present mathematical skills and concepts and to apply them to ideas that are important to students in the management, life, and social sciences. Differentiation, Integration etc. are some of the topics that will be presented in this module and then applied to optimization problems (Business and Science), rates of change problems and other applications.

The module will be text oriented and intents to help students to develop their critical thinking and problem solving ability. Students are expected to have read assignments prior to class attendance.

Upon completion of this module, it is the aim and hope of the mathematics faculty that students who work hard and apply themselves will be able to:

1. Acquire a solid foundation in Differential and Integral calculus in order to prepare for other college modules that require such knowledge.
2. Understand how math can model and solve authentic real world problems.
3. Develop problem-solving skills, fostering critical thinking, within a varied and interesting setting.
4. Encourage modeling and connecting Mathematics to various disciplines.

### 3. Aims of the module

The module is designed to give students a sound intuitive understanding of basic concepts and enable students to apply a variety of techniques to practical situations.

### 4. Pre-requisite modules or specified entry requirements

MATH 101

### 8. Indicative content.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Functions, Graphs, and Limits</th>
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<tbody>
<tr>
<td>Chapter 1</td>
<td>Functions, Graphs, and Limits</td>
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<tr>
<td>Chapter 2</td>
<td>Applications of Derivatives</td>
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<tr>
<td>Chapter 3</td>
<td>Additional Applications of the Derivative</td>
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<tr>
<td>Chapter 4</td>
<td>Exponential and Logarithmic Functions</td>
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<tr>
<td>Chapter 5</td>
<td>Integration</td>
</tr>
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<td>Chapter 7</td>
<td>Functions of Two or more Variables</td>
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STAT 205: Introductory Statistics

1. Factual information

<table>
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<tr>
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</tr>
<tr>
<td>Notional learning hours</td>
<td>150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes</td>
</tr>
</tbody>
</table>

2. Rationale for the module and its links with other modules

The module assumes at least elementary college algebra knowledge. It is a practical as well as conceptual module, which provides important training and skills useful in the professional as well as academic domain.

3. Aims of the module

This module is an introduction to descriptive and inferential statistical methods. This introductory module covers the concepts and techniques concerning exploratory data analysis, frequency distributions, correlation, central tendency and variation, probability, sampling distribution statistical inference. Students will be exposed to these topics and how each applies to and can be used in the business environment. Students will master problem solving using both manual computations and statistical software. Simulations and animations are employed in teaching and the students learn the value of random simulation in risk assessment.

The module aims at the following:

- Give the student the statistical skills necessary to meet the needs of business and the real-world decision-making problems
- Effectively communicate the results of a statistical analysis both orally and in writing.

Provide fundamental statistical knowledge and skills required for a higher-level module in related fields.

4. Pre-requisite modules or specified entry requirements

Math 101. The module is typically taken at the 1st semester of study non-OU validated

8. Indicative content.

Data and Statistics
Descriptive Statistics
Descriptive Statistics: Numerical Measures
Probability
Discrete Probability Distributions
Continuous Probability Distributions
Sampling Distributions
Interval Estimation
Hypothesis Testing
Linear Regression
8. **STUDENT SUPPORT, GUIDANCE AND ADVICE**

**ACADEMIC ADVISING AND MENTORING**

During the first 2 weeks of classes, students will be assigned the faculty member who will be their Academic Advisor for their first year at ACT and, in most cases, until graduation. The Academic Advisor helps students to plan their overall program of studies, as well as to select courses each semester. Advisors also provide information about ACT academic and support services, assist students in addressing problems in particular courses within a given semester, and offer ongoing advice concerning the students’ long-term academic and career goals.

Students with weak English language competency, as well as those on academic probation with a low GPA (less than 1.5), are assigned faculty mentors who follow the students’ progress throughout the semester by meeting frequently with the students, follow their progress in classwork by maintaining a line of communication with the students’ instructors and by compiling reports on the students’ progress.

**THE LEARNING HUB**

ACT’s Learning Hub is located on the upper floor of the Library. Students are invited to meet with the tutors and receive assistance with their English language and Mathematics needs. The Admissions and the Enrollment department offices are also located on the upper floor of the Library. Prospective students may obtain from there all the necessary information concerning their studies and financial support.

**HEALTH SERVICES**

The resident Anatolia High School nurse accepts student emergency visits as well as regular appointments in her office located on campus. The Anatolia/ACT is also within easy access to both a private clinic and several hospitals, all of which provide emergency services. A resident doctor at ACT is available to students on campus during the doctor’s office hours.

9. **OPPORTUNITIES FOR PERSONAL DEVELOPMENT PLANNING**

**CAREER SERVICES AND GUIDANCE**

The Career Office equips students with the tools and know-how to successfully kick starts their careers. Specifically, we provide hands-on training on interviewing, resume & cover letter writing. The above are subsidized by guest lectures, which help students get an insight in their field of interest, and company visits, which give students the opportunity to meet company representatives and conduct informational interviews. The office also provides individual consultations in any career related issue, including job search tactics, career planning, resume preparation and mock interviews. Apart from this preparation stage, the career office offers internship and job opportunities, both in Greece and abroad, accessible to all students via the Career Office’s job board (jobs.act.edu).

In addition, the Career Office also organizes the annual Career Week, a week-long event with lectures, company presentations, on-campus recruiting, networking opportunities and hands-on workshops.

The Office also serves as Liaison with the Business Community, and works actively with Industry and Academia to identify placement opportunities and keep students informed of local and regional trends. Leading representatives from the private and public sectors visit ACT regularly as guest speakers in classes and events, reinforcing ACT’s strong ties with companies, institutions and organizations throughout the local, national and international business environment.

**GRADUATE EDUCATION COUNSELING**

ACT’s Graduate Education Office (GEO) guides students in their further educational progress. Graduates are assisted throughout the process of selecting appropriate programs and applying to ACT’s or other postgraduate programs in numerous ways such as: website addresses for research into colleges / universities suited to their needs and qualifications, assistance with the writing of personal statements (in collaboration with the Writing Center) and
coordination of recommendation letters prepared by faculty members. The GEO offers two workshops every fall semester, one for students interested in studying in the US (U.S. Advisor: Mrs. Heather Funk), the other targeted towards studying in the United Kingdom (U.K. Advisor: Dr. Eleni Godi).

Students should visit the Graduate Education Advisors early in their academic career (1st and 2nd year) and not necessarily wait until their 3rd or 4th year, when the reality of postgraduate education is right around the corner.

**INTERNSHIPS**

The Career Office gives special emphasis to students’ internships, both with local and international organizations. Every semester there is a visiting program with local organizations with internship opportunities, all relevant to the academic programmes and focusing on enhancing in-class learning. Apart from the on-campus recruiting, we coordinate a series of internship opportunities with organizations located in other cities or even abroad, either with on-site placement or remote work. The school’s Job Board and Facebook Career Group help disseminate the internship opportunities, while the Career Workshops (resume writing, cover letter preparation, mock interviews) prepare students for claiming those opportunities.

10. **OPPORTUNITIES AND SUPPORT FOR STUDY ABROAD**

**ACT STUDENTS STUDYING IN THE US**

ACT has signed a number of study abroad exchange agreements with partner colleges and universities that enable students to spend a semester studying in the US. Through these agreements, ACT students may spend a semester, normally in their second or third year of study, at a college in the US, and upon return to ACT receive full transfer credit for all courses successfully completed while abroad. Agreements with partner schools allow ACT students to enroll at collaborating institutions while continuing to be enrolled at the home school and pay tuition and fees at ACT. Students are encouraged to look into study abroad opportunities early in their academic career with the director of the I.P.O. Good academic standing is a pre-requisite for considering such a possibility.

11. **WORK PLACEMENT INFORMATION**

A number of opportunities for personal development are available to English majors on demand and on a voluntary basis within the program, ranging from opportunities for joining extracurricular activities and clubs on campus, serving on the Student Government Association, engaging in Service Learning, acquiring information literacy and CV writing skills to building professional expertise through a term’s Internship training in their senior year, thus enhancing self-reflection, PR and communication skills, personal and professional responsibility, learning how to meet deadlines and working with others, etc.

In addition, through ACT’s Careers Office, targeted English-specific workshops, company visits and presentations further enhance opportunities for personal development. Short term internships have also been introduced. Here are some concrete examples:

- Communications & copywriting internship opportunities
- Resume, cover letter and interview workshops
- Private consultations for preparing individual students’ resumes & cover letters.
- Mock interviews - private advising on interviewing
- Job board which renews weekly and includes - among others - internship and entry level opportunities in the field of communication.
- Guest lectures of professionals in the field (media, teaching, etc.)

As ACT graduated its first English cohort in June 2015, it is early to engage in a thorough evaluation of the value and benefit of the above-mentioned practices.

The programme does not require students to undertake a compulsory work placement but there is the option of internship, if they wish to do so.

Through the service learning/practicum course Soc Sc 399 (a non-OU validated module) which is comprised of a combination of theoretical sessions and real-life case study projects, students will be able to make visible
connections between community service, their own learning, personal and professional development and citizenship skills, values and practices.

12. Facilities and Services

Bissell Library - General Information

The Bissell Library offers a collection of about 26,400 books in print, over 126,000 of electronic books and hundreds of videos, DVDs, and CD-ROMS. Already one of the largest English language libraries in Greece, its collection is rapidly growing into a space designed to accommodate the institution’s needs for years to come. The collection includes subscriptions to periodicals in hard copy as well as access to over 42,000 full-text scholarly journals, magazines, and newspapers.

The Bissell Library offers, to currently enrolled students, on site and remote access to over 20 research databases to support inquiry and research. Business databases include Ebsco’s Business Source Elite, Regional Business News, Hoover’s, and ProQuest ABI Inform Global. Databases for research include: Academic Search Premier, E-books collection, Encyclopedia Britannica, ERIC, GreenFILE, Columbia International Affairs Online (CIAO), JSTOR, Oxford English Dictionary and Oxford Music Online. We also subscribe to the Ebsco A-Z service, providing listing of all the electronic resources accessible from the library.

In order to maximize the value of our collections and increase the ease of their use, a new service has been introduced. EBSCO Discovery Service TM brings together the most comprehensive content providing to users an easy, yet powerful means of accessing all of the library’s information resources through a single search.

The Bissell Library shares an integrated library management system with the Socrates Eleftheriades and Olga Mavrophidou-Eleftheriades Library of Anatolia College. Access to both collections is available through the web-based library catalog. Library users can search the catalog, databases or the Internet through public access terminals available on both floors of the library. Network ports are available for laptops and the entire building is Wi-Fi enabled.

Computing Services & Networking Facilities

ACT has state of the art computer infrastructure and facilities. All computer facilities are connected to a high-speed campus network, which is based on fiber optic cables connecting all buildings. In addition a large high speed wireless network access (WI-FI) covers large areas of the campus giving students the ability to use the school’s resources or access the internet on their laptop.

The computer facilities include the Stavros S. Niarchos Technology Center in Bissell Library and a number of other computer laboratories located in various buildings. There are over 20 high-speed servers present in the network infrastructure and there are approximately 130 Intel® Core™ latest technology workstations, connected to the Internet, available to students in multiple laboratories:

The laboratories are used both as general access and instructional computer labs. They are equipped with data projectors and black and white or color laser printers. All stations are networked with full Internet Access and run the latest software such as MS Office, Oracle, Power-builder, Visible Analyst, Java, Visual Basic, 3-D Max, Adobe Photoshop, Adobe CS Production Studio Premium, Macromedia Studio, Macromedia Authorware, PanaView Image Assembler, Mathematica Player, Minitab, MathCad, Daedalus, etc.

Science Laboratories

All science courses are accompanied by laboratory work. The purpose of the laboratories offered is to expose students to hands-on experience regarding concepts and principles learned in classroom. The College’s new Science Facilities are located in the Compton Hall basement. The facilities include three laboratories (Biology/Ecology, Physics, Chemistry) covering a total area of 300 square meters.

Food Services

The ACT Cafe, rented on a contract to a professional food service provider, is also located in the New Building (ACT main classroom building) and operates weekdays from 10:00 - 18:30 (Fall – Spring semesters) and 11:00 - 14:00 (Summer term—hours flexible) when classes are in session. The cafe offers an assortment of cold and hot sandwiches, coffee, salads and beverages.
On-campus housing is available on a first come, first served basis and priority is always given to freshmen. Apartments are all shared and have both single and double rooms, common area, kitchen and bathroom. They are fully furnished and on-campus students have free access to internet, the gym, and also to basketball, football and tennis courts. There is an on-campus dining room where students can have warm meals and the Bissell library is in close proximity to the housing. All interested students must complete a Housing Application in order to be considered for on-campus housing.

The Student Services Coordinator will assist students in locating off-campus housing in local residential areas. A list of trusted real estate agencies and property owners who speak English will be made available for interested students. ACT does not have any official relationship with housing agencies and does not endorse any specific agency. With all off-campus housing, students are responsible for personally contracting with the landlord but ACT will provide guidance and assistance. Regular announcements about available flats around the city are made on the ACT housing Facebook group. Students can also refer to this Facebook group in order to find roommates or shared housing.
13. ASSESSMENT AND PROGRESSION REGULATIONS

SUBMISSION OF ASSESSED WORK

Work submitted for a summative assessment component cannot be amended after submission, or re submitted. Student requests for extensions to assessment deadlines will not be approved unless made in accordance with published partner institution guidelines as approved by The Open University.

Where coursework is submitted late and there are no accepted extenuating circumstances it will be penalized in line with the following tariff:

Submission within 6 working days: a 10% reduction for each working day late down to the 40% pass mark and no further.

Submission that is late by 7 or more working days: submission refused, mark of 0. A working day is defined by the partner and submission after the deadline will be assumed to be the next working day.

ASSESSMENT SCORES

All undergraduate assessment will be marked on a percentage scale of 0-100.

<table>
<thead>
<tr>
<th>% Scale Score</th>
<th>Performance Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>70+</td>
<td>Excellent pass</td>
</tr>
<tr>
<td>60-69</td>
<td>Very Good pass</td>
</tr>
<tr>
<td>50-59</td>
<td>Good Pass</td>
</tr>
<tr>
<td>40-49</td>
<td>Pass</td>
</tr>
<tr>
<td>0-39</td>
<td>Fail</td>
</tr>
</tbody>
</table>

The final grade for an individual assessment component will be determined after completion of a quality assurance process (e.g. moderation, remarking) as detailed in the partner institution’s OU approved policy for moderation.

Where the result of the assessment calculation creates a mark of 0.5% or greater this will be rounded up to the next full percentage point (e.g. 69.5% is rounded to 70; 59.5% to 60%; and so on). Where the calculation creates a mark below 0.5% this will be rounded down to the next full percentage point (e.g. 69.4% is rounded to 69%; 59.4% to 59%; and so on). For the purposes of rounding up or down, only the first decimal place is used.

DETERMINING PROGRESSION AND QUALIFICATION OUTCOMES

The paths through which students are required to progress through the programme, and the elements identified as compulsory or optional, are set out in the programme specification and approved in the validation process.

Pathways through any programmes offered by partner institutions may require students to complete prerequisite or co-requisite modules.

STAGE REQUIREMENTS

Each of the stages of an undergraduate programme is expected to consist of a total of 120 credits.

In cases where Programmes are not divided into stages (for example, most postgraduate programmes and undergraduate programmes of 120 credits or less) the provisions below apply to the whole programme.

In order to complete and pass a stage of a programme, a student must acquire the total credit set out in the programme specification at the approved qualification level for the award, or have been exempted through advanced standing, or through the implementation of the processes covering extenuating circumstances (see Section F).

The credit value of each module contributing to a stage determines its weighting in the aggregation of credit for a stage.
Where a student fails a module, the following may apply in the first instance:

- Resit, a second attempt at an assessment component following a failure at first attempt.
- Compensation, the award of credit by the Board of Examiners for a failed module(s) on account of good performance in other modules at the same credit level where the learning outcomes have been met.

**RESIT PROVISION**

Resit provision is subject to all the following conditions:

- The maximum number of retakes allowed in a programme leading to an Open University award is 10.
- A student who does not complete the resit by the date specified shall not progress on the programme, except in cases where the process for allowing extenuating circumstances has been followed.
- Resits can only take place after the meeting of the Board of Examiners or following agreement by the Chair and the External Examiner of the Board.
- A student who successfully completes any required resits within a module shall be awarded the credit for the module and the result capped at the minimum pass mark for the module.

**COMPENSATION**

Unless otherwise stated in the approved programme specification, compensation will be applied when the following conditions are met:

- No more than 20 credits, or one sixth of the total credits, whichever is greater, can be compensated in any one stage of an undergraduate or postgraduate programme.
- Compensation is not permitted for modules within awards of less than 120 credits in total.
- It can be demonstrated that the learning outcomes of the qualification level have been satisfied. The process for evaluating cases will be identified in the programme specification.
- A minimum mark of no more than 5 percentage points below the module pass mark has been achieved in the module to be compensated.
- Taking the module mark to be compensated into account, an aggregate mark of 40% has been achieved for the qualification level of the undergraduate programme (except in the case of MEng Level 7 where an aggregate mark of 50% has been achieved).
- In the case of postgraduate programmes, taking the module mark to be compensated into account, an aggregate mark of 50% has been achieved.
- No compensation shall be permitted for any core project/dissertation module, as defined in the programme specification.
- A student who receives a compensated pass in a module shall be awarded the credit for the module. The original component mark(s) (i.e. below the pass mark) shall be retained in the record of marks and used in the calculation of the aggregate mark for the stage or qualification.

**OPTIONS FOR THE REPEAT OF STUDY**

If, having exhausted all permitted resit and compensation opportunities, a student is still unable to pass, the Board of Examiners may, at its discretion, permit one of the following repeat options:

**Partial repeat as fully registered student:**

- The student is not permitted to progress to the next stage of the programme but must repeat the failed modules and/or components in full during the following academic year,
- The student has full access to all facilities and support for the modules and/or components being repeated,
- The marks that can be achieved for the modules and/or components being repeated will be capped at the module and/or component pass marks,
- The student retains the marks for the modules and/or components already passed,
- No further resit opportunities are permitted.

**Partial repeat for assessment only:**
- That access to facilities and support will be limited to certain learning resources for the module(s) and/or component(s) being repeated. Participation will only be allowed for relevant revision sessions and assessments.

**Full repeat:**
- This is only permitted where the student has extenuating circumstances;
- The student does not progress to the next stage of the programme but instead repeats all the modules in the current stage during the following academic year,
- The student has full access to all facilities and support,
- The marks that can be achieved are not capped, and the student is normally entitled to the resit opportunities available. However, a student is not able to carry forward any credit from previous attempts at the stage.

Where resit compensation and repeat opportunities have been exhausted, a Board of Examiners may recommend a student for an exit award as defined in Section 20 below.

Exam Boards will look at individual cases where stages have not been completed and advice on progression.
**14. DISSERTATIONS AND PROJECTS**

**HOW THE BISSELL LIBRARY SUPPORTS STUDENTS WITH THEIR THESSES**

The Bissell library in its effort to compliment and facilitate the educational process and the curriculum, always strives to provide the best services possible safeguarding that all students across all Divisions receive the same learning experience and support, as well as fair access to all available resources and services. More specifically when it comes to the writing up stage of their theses, the Bissell Library provides the following Resources and Support Services.

**Resources:**
- A collection of thesis writing books, academic writing and general study skills, for example how to evaluate resources, or how to study more effectively can come very handy at the literature review stage. This collection is housed in the Learning Hub (Writing Centre).
- Subject guides corresponding to the Divisions also provide a thematic information gateway of trustworthy information resources (e-journals, databases, etc.) to assist students in their quest for information gathering for their theses.
- The website of the Library, which is currently under heavy revision (the new site will be in place from the 1st of Sept.), attempts to familiarize and provide introductory guidance on how to use various online tools such as Zotero, EasyBib and Diigo, which can become indispensable tools when it comes managing information and bookmarks, and citing resources.
- Guides have been composed to assist students with the OU Harvard referencing style (available on the library website).
- The Library in conjunction with all Divisions has streamlined the procedure of gathering all theses so as to develop in the near future an Institutional Repository. In the meantime students can drop in any time and can have access to study good examples of theses on site.
- Last but not list a plethora of printed material in a variety of subjects is also available to students.
- The students are able to ask for interlibrary loans of journal articles we do not have online access to. The service is provided by the British Library. They are also able to suggest books relevant to their research to the library to buy.

**Support Services:**
- The Learning Hub, former Writing Centre, strives to help students to become strong, independent learners through a variety of services. The assistance stretches through all stages of the learning process whether it is revising thesis writing, math, reading, or just refining those digital skills. Consultation is offered on one to one basis on prearranged meetings, or drop in sessions, as well as via e-mail. From the beginning of the new academic year Learning Hub will have its own website providing access 24/7, to wide variety of targeted information and resources on Study skills, English Language, IT skills, Personal development skills and Science & Technology.
- The allocation of two Academic Liaison Librarians as well as Division Academic staff reps allow for better communication among students, academic staff and the Library. This helps students and academic staff to convey in a more efficient manner their needs to the Library.
- Information Literacy lessons conducted by the Academic Liaison Librarians offer students a reminder of research, evaluation and referencing skills to support them in their project. This come as a continuation of previous Information literacy teaching offered in the previous years of study. These sessions include: techniques on how to locate formal and informal information sources on subjects, evaluation of resources, plagiarism and paraphrasing, and referencing.
- Finally the Academic Liaison Librarians provide one to one support on how to search, evaluate and locate materials and referencing, either in drop in sessions or after appointments.
15. **DETERMINATION OF RESULTS**

**MINIMUM REQUIREMENTS FOR PASS**

To obtain an Open University award students are required to complete all parts of the programme’s approved assessment and comply with all regulations relating to their programme of study. The minimum aggregate pass marks for The Open University validated awards are:

- 40% for undergraduate programmes
- 50% for postgraduate programmes

These minima apply to assessments, modules, stages and qualifications.

**DETERMINING MODULE OUTCOMES**

The overall module mark or grade shall be determined as set out in the assessment strategy detailed in the module specification and published in the Programme Handbook.

A student who passes a module shall be awarded the credit for that module. The amount of credit for each module shall be set out in the programme specification and published in the Programme Handbook.

In order to pass a module a student must achieve the requirement of the module as set out in the module specification and published in the Programme Handbook.

Where a student is registered only for a module (rather than a qualification) the resit will apply.

**BACHELOR HONOURS DEGREE CLASSIFICATION**

Classification of bachelor degrees will be based on the average mark across all modules within Stage 3 (usually Credit Level 6) and Stage 2 (usually Credit Level 5) at a ratio of 2:1 respectively unless the requirements of a Professional, Statutory and Regulatory Body (PSRB) state otherwise.

Honours degrees are classified as:

- First class  Aggregate mark of 70% or above
- Upper Second class  Aggregate mark between 60% and 69%
- Lower Second class  Aggregate mark between 50% and 59%
- Third class  Aggregate mark between 40% and 49%

Where students have directly entered a Qualification Level 6 top-up award (e.g. having previously undertaken a Higher National Diploma (HND) or Foundation Degree (FD) award) the calculation for the honours classification will be based solely on all credits at Credit Level 6.

Performance in work for which an award of credit for prior learning has been made is not taken into account in the calculation of the final award.

Where the final result of the classification calculation creates a mark of 0.5% or greater this will be rounded up to the next full percentage point (e.g. 69.5% is rounded to 70; 59.5% to 60%; and so on). Where the calculation creates a mark below 0.5% this will be rounded down to the next full percentage point (e.g. 69.4% is rounded to 69%; 59.4% to 59%; and so on). For the purposes of rounding up or down, only the first decimal place is used.
16. Other Institutional Policies and Regulations

Academic Misconduct

Academic misconduct is defined as any improper activity or behavior by a student which may give that student, or another student, an unpermitted academic advantage in a summative assessment. In investigating and dealing with cases of suspected misconduct, partner institutions will follow the policies and processes approved at Institutional approval or review.

The following is a non-exhaustive list of examples of academic misconduct which will be considered under these Regulations:

- Plagiarism: representing another person’s work or ideas as one’s own, for example by failing to follow convention in acknowledging sources, use of quotation marks, etc. This includes the unauthorized use of one student’s work by another student and the commissioning, purchase and submission of a piece of work, in part or whole, as the student’s own.

  Note: Where a student has an acknowledged learning disability, a proof-reader may be used to ensure that the student’s meaning is not misunderstood as a result of the quality and standard of writing, unless a partner institution policy specifically prohibits this. Where permitted, a proof-reader may identify spelling and basic grammatical errors. Inaccuracies in academic content should not be corrected nor should the structure of the piece of work be changed.

- Collusion: cooperation in order to gain an unpermitted advantage. This may occur where students have consciously colluded on a piece of work, in part or whole, and passed it off as their own individual efforts or where one student has authorized another to use their work, in part or whole, and to submit it as their own.

  Note: legitimate input from tutors or approved readers or scribes is not considered to be collusion.

- Misconduct in examinations (including in-class tests).

ACADEMIC OFFENCES

An academic offence (or breach of academic integrity) includes any action or behavior likely to confer an unfair advantage, whether by advantaging the alleged offender or by disadvantaging another or others. Examples of such misconduct are plagiarism, collusion, cheating impersonation, use of inadmissible material and disruptive behavior.

Responsibility for reviewing breaches of academic integrity is held by the AS&PC.

Charges against a student for violating academic integrity may originate from any source: a faculty member, an administrator, a staff member, a fellow student, or from the community at large. The charges are to be submitted in writing to the chair of the AS&PC. If a member of the Committee originates the charge, then that member will be excluded from the decision-making process, and any other process related to the case.

On receipt of the allegation of a breach of academic integrity, the Chair of the AS&PC must inform the Chair of the Board of Examiners that is responsible for the assessment of the course(s) that are affected by the alleged offence. The Board should then suspend its decisions on the candidate’s grade(s) until the facts have been established. The AS&PC will either itself investigate the charge or establish from its own membership a panel to conduct the investigation. In establishing whether a breach of academic integrity has occurred, the Committee (or panel) should consider oral and/or written evidence supplied by the individual(s) making the charge and the alleged offender. The alleged offender shall have the right to appear before the Committee (or panel).

Once the AS&PC has considered the allegation and reached a conclusion on whether an offence has occurred, it should issue a report with a recommendation regarding the outcome for the student to the Chair of the relevant Board of Examiners. If it has been established that an offence has occurred, the Board will judge the significance of the misdemeanor and exercise its discretion as appropriate to the case. If it is established that a student has attempted to gain an unfair advantage, the examiners shall be given the authority to rule that the student has failed part or all of the assessments, and the authority to determine whether or not the student should be permitted to be reassessed.

Independently on the assessment decisions made by the Board of Examiners, the AS&PC is empowered to consider a wider range of sanctions that might be applied when a student is found guilty of a breach of academic integrity. The following list of sanctions is indicative and can be imposed by majority vote of the Committee:
• Admonishment Letter (or Letter of Warning): The student is advised in writing that her/his behavior violates rules of academic and/or personal integrity and that a recurrence will lead to more serious sanctions. The Committee will deliberate on whether the letter should or should not appear in the student’s file permanently or for a lesser period of time.

• First Offense File: The student’s name and a description of the offense are filed in a shared electronic folder, accessible by the Provost, department chairs and area coordinators. Second offenses automatically result in a hearing.

• Disciplinary Probation: The student is advised in writing that his/her behavior violates rules on academic and/or personal integrity and is given a probationary period (to be decided upon by the Committee) to show by good behavior that a more stringent penalty should not be imposed. During the period of the probation, the student is required to terminate association with all extra-curricular activities and resign from any student office.

• Suspension: The student’s relationship with the College will be discontinued until the end of the semester or term. The student will forfeit any fees involved with the College.

• Dismissal: The student’s relationship with the College will be terminated indefinitely. The right to apply for re-admission shall be denied.

Within five working days of receipt of the decision, either party (plaintiff or student) has the right to make a formal written appeal against the decision of the Committee. The appeal is addressed first to the AS&PC. If the Committee does not deem any change to the decision is warranted subsequent to consideration of the appeal, the appeal may then be brought to the Academic Council, and subsequently to the President whose decision is final.

EXTENUATING CIRCUMSTANCES

The Open University recognizes that students may suffer from a sudden illness, or other serious and unforeseen event or set of circumstances, which adversely affects their ability to complete an assessment, or the results they obtain for an assessment. In such cases the partner institution’s extenuating circumstances procedures will be applied, as approved in institutional review.

A student who is prevented from attending or completing a formal assessment component or who feels that their performance would be (or has been) seriously impaired by extenuating circumstances, may submit a deferral request. Further information is available from the partner institution.
The following regulations distinguish between factors or circumstances which were known to the student in advance of taking an assessment and which affect his or her ability to attend an examination or submit work by the published deadline, and those which have not impaired the student’s ability to attend for examination or meet a deadline for the submission of work but which may have affected his or her performance. In all cases, it is the responsibility of the student to ensure the timely disclosure of any factors or circumstances which may affect the assessment of his or her learning and responsibility for the consideration of these factors and circumstances will lie with the AS&PC. Students whose circumstances may affect (or may have affected) their ability to meet a program’s assessment requirements must submit a completed Mitigating Circumstances Extension Form together with verifiable documentation to the Registrar’s Office. This form can be completed electronically or in person and may, if necessary, be signed retrospectively.

In the case of factors or circumstances which were known to the student in advance of taking an assessment and which affect his or her ability to attend an examination or submit work by the published deadline:

- the AS&PC will consider the evidence submitted by the student;
- if the mitigating circumstances are accepted by the Committee it will determine the extension to be granted to the student or, in the case of examinations, the date on which the student shall be assessed; in such cases the grades will not be capped at 40%.
- the Chair of the Board of Examiners, the Registrar and the appropriate department head/area coordinator will be informed of the Committee’s decision.
- The student will have the right to apply for a further extension, or for a rescheduling of an examination, if the mitigating circumstances persist.

In the case of factors or circumstances having prevented a student from attending for examination or meeting a deadline for the submission of work but which may have affected his or her performance:

- the AS&PC will review the evidence submitted by the student and make a recommendation for consideration by the appropriate Board of Examiners;
- the Board of Examiners is responsible for considering that action that it should take in the light of the recommendations of the AS&PC;
- the actions available to the Board of Examiners include: the deferral of an assessment to a later date; compensation for the failure in a course; agreement that the student should either retake the course or be reassessed with the grade achieved being recorded in the student’s transcript and therefore contributing to the classification of the award; and, exceptionally a decision that the student be assigned a higher grade for the course or courses on which his or her performance has been affected.

Students are responsible for ensuring that the partner institution is notified of any extenuating circumstances at the time they occur and for supplying supporting documentation by the published deadline. If a student is unable to attend an examination or other assessment event because of extenuating circumstances, they must inform the Partner institution as soon as possible and provide supporting evidence before published deadlines or within 7 calendar days, whichever is sooner. If a student cannot submit evidence by published deadlines, they must submit details of the extenuating circumstances with an indication that evidence will be submitted within 7 calendar days.

Medical evidence submitted in support of a claim for extenuating circumstances should be provided by a qualified medical practitioner. The partner institution will verify the authenticity of any evidence submitted. Upon receipt of recommendations from the panel or body responsible for investigating extenuating circumstances, the Board of Examiners, or its subsidiary board, will decide whether to:

- provide a student with the opportunity to take the affected assessment(s) as if for the first time i.e. a ‘sit’ or ‘submit’, allowing them to be given the full marks achieved for the examination or assessment, rather than imposing a cap;
- waive late submission penalties;
- determine that there is sufficient evidence of the achievement of the intended learning outcomes from other pieces of assessment in the module(s) for an overall mark to be derived;
• note the accepted extenuation for the module(s) and recommend that it is taken into account at the point of award and classification.

The Board of Examiners, depending on the circumstances, may exercise discretion in deciding on the particular form any reassessment should take. Options are a viva voce examination, additional assessment tasks designed to show whether the student has satisfied the programme learning outcomes, review of previous work, or normal assessment at the next available opportunity. The student will not be put in a position of unfair advantage or disadvantage: the aim will be to enable the student to be assessed on equal terms with their cohort. The module marks released following the meeting of the Board of Examiners should clearly identify results where extenuation has been considered and applied.

If a student fails, without good cause, to provide the responsible body with information about extenuating circumstances within the timescales specified in the partner institution policy, the responsible body has authority to reject the request on those grounds.
17. STUDENT PARTICIPATION AND EVALUATION

STUDENT PARTICIPATION

A member of the Student Government Association (SGA) must be present at all meetings of the Academic Standards and Performance Committee (ASPC) of the college, and participate in the discussions and voting for all cases examined. Furthermore, there are scheduled weekly meetings between the Assistant Dean and the SGA, where students present their views on the operation and development of the College. In addition, ACT regularly invites students to Academic Council meetings, where they can express their views and opinions to the top-level administration. The SGA is also involved in co-organizing major on-campus events.

MODULE EVALUATION

Module evaluation is conducted through the student evaluation forms. These forms measure the teaching quality and assessment methods, learning materials, delivery methods, course objectives, thought-provoking activities, comprehension of the subject matter, grading, degree of intellectual challenge and stimulation and draw comparisons with other courses. The collection of student feedback is made at the office of the Assistant Dean, who has the general overview of the procedure. Then, modules are classified according to the programme they belong, and the feedback is sent to the corresponding department head. The results are also forwarded to the individual instructors. The outcomes of module evaluations are discussed between the Assistant Dean and the department heads, and also in the departmental meetings of all divisions. In all these meetings, measures that need to be taken to improve student experience in future offerings of the modules are discussed.

COLLEGE-WIDE FEEDBACK

At the college level, ACT is administering another survey to measure both educational and other aspects of student life and behaviors. The survey, named College Student Experiences and Learning Outcomes (CSELOA) is aiming at measuring self-perceptions of students and has two parts. The first part measures student learning outcomes and the second measures student behaviors and experiences. The questionnaire includes a diverse spectrum of variables relating to academics, faculty, student services, student-to-student and student-to-faculty interactions, sense of community, use of campus facilities, academic skills, communication, after-college preparation for graduate studies or work, and off campus study and life behaviors.
18. **GENERAL READING LIST (NOT MODULE SPECIFIC), INCLUDING ELECTRONIC RESOURCES (AVAILABLE IN THE ANATOLIA LIBRARIES)**

- Fundamentals of data structures in C++ /; Horowitz, Ellis; 1995; Bissell Library, General Stacks (005.73 HOR)
- Cryptography's role in securing the information society / Kenneth W. Dam and Herbert S. Lin, editors.; 1996; Bissell Library, General Stacks Upper Level (652.8 CRY)
- Data structures and algorithms /; Aho, Alfred V.; 1983; Bissell Library, General Stacks (005.73 AHO)
- Fundamentals of computer algorithms /; Horowitz, Ellis; 1978; Bissell Library, General Stacks (519.4 HOR)
- Web-teaching: a guide to designing interactive teaching for the World Wide Web /; Brooks, David W.; 1997; Eleftheriades Library (025.06 BRO)
- Principles of database and knowledge-base systems /; Ullman, Jeffrey D. ; 1988; Eleftheriades Library (005.74 ULL)
- Research methods in political science: an introduction using MicroCase.; Corbett, Michael.; 2003; Bissell Library, Reference Desk (320.0285 COR)
- Young scientist.; 1999; Eleftheriades Library (CD 503 YOU)
- Understanding information systems: what they do and why we need them.; Ratzan, Lee; 2004; Bissell Library, East Wing (LSDC 020 RAT)
- Information management using dBase.; Yerkey, A. Neil; 1991; Eleftheriades Library (025.3 YER)
- Encyclopedia of job-winning resumes /; Fournier, Myra.; 2006; Bissell Library, General Stacks Upper Level (650.14 FOU)
- Object-oriented programming in architecture; 1999; Bissell Library, Staff Office (VC 005.26 OBJ)
- Global software programmers; 1999; Bissell Library, Staff Office (VC 005.26 GLO)
- StudyWorks! for science / Mathsoft; 1986; Eleftheriades Library (CD 503 STU)
- Consider a spherical cow: a course in environmental problem solving.; Harte, John; 1988; Bissell Library, General Stacks (363.7 HAR)
- Computer images.; 1986; Eleftheriades Library (006.6 COM)
- Mind tools: the science of artificial intelligence.; Bortz, Alfred B.; 1992; Eleftheriades Library (006.3 BOR)
- Computationalism: new directions.; 2002; Bissell Library, General Stacks (004 COM)
- Toward autonomous, adaptive, and context-aware multimodal interfaces: theoretical and practical issues: third COST 2102 International Training School Caserta, Italy, March 15-19, 2010: revised selected papers.; 2011; Bissell Library, General Stacks (004.019 COS)
- Learning PHP, MySQL & JavaScript: with jQuery, CSS & HTML5.; Nixon, Robin; 2015; Bissell Library, Reference Desk (005.2762 NIX)
- Object-oriented programming in the arts; 1999; Bissell Library, Staff Office (VC 005.26 OBI)
- Cite right: a quick guide to citation styles--MLA, APA, Chicago, the sciences, professions, and more.; Lipson, Charles; 2006; Bissell Library, East Wing (LSDC 808.027 LIP)
- Sets, logic and maths for computing.; Makinson, David; 2012; Bissell Library, General Stacks (004.01 MAK)
- Electronic payment systems for e-commerce.; O'Mahony, Donal; 2001; Bissell Library, General Stacks (332.1028 O'MA)
- Data structures and problem solving using Java.; Weiss, Mark Allen; 2002; Bissell Library, General Stacks (005.133 WEI)
- Java design: objects, UML, and process.; Knoernschild, Kirk; 2002; Bissell Library, General Stacks (005.133 KNO)
- Data structures, algorithms, and applications in Java / Sahni, Sartaj; 2000; Bissell Library, General Stacks (005.74 SAH)
- Bissell Library (005.74 SAH)
- Java the UML way: integrating object-oriented design and programming / Lervik, Else; 2002; Bissell Library, General Stacks (005.133 LER)
- An introduction to object-oriented programming with Java / Wu, C. Thomas; 2001; Bissell Library, General Stacks (005.133 WU)
- Bissell Library (005.133 WU)
- Stacks (005.74 SAH)
- Bissell Library (005.74 SAH)
- Java the UML way: integrating object-oriented design and programming / Lervik, Else; 2002; Bissell Library, General Stacks (005.133 LER)
- An introduction to object-oriented programming with Java / Wu, C. Thomas; 2001; Bissell Library, General Stacks (005.133 WU)
- Bissell Library (005.133 WU)
- Physics for computer science students: with emphasis on atomic and semiconductor physics / Garcia, Narciso; 1991; Bissell Library, General Stacks (530 GAR)
- Encyclopedia of computer science and technology / Henderson, Harry; 2003; Bissell Library, Reference Stacks (R 004.03 HEN)
- Essential discrete mathematics for computer science / Feil, Todd; 2003; Bissell Library, General Stacks (004.01 FEI)
- Invitation to computer science / Schneider, G. Michael; 2013; Eleftheriades Library, General Stacks (004 SCH)
- Fundamentals of discrete math for computer science: a problem-solving primer / Jenkyns, T. A.; 2013; Bissell Library, General Stacks (004.01 JEN)
- GRE: practicing to take the computer science test.; 1997; Bissell Library, General Stacks (004.071 GRE)
- Computing tomorrow: future research directions in computer science /; 1996; Bissell Library, General Stacks (004.072 COM)
- Concrete mathematics: a foundation for computer science /; Graham, Ronald L.; 1994; Eleftheriades Library (510 GRA)
- Discrete Mathematics /; Graham, Ronald L.; 2011; Eleftheriades Library, General Stacks (510 GRA)
- Thesis projects: a guide for students in computer science and information systems /; 2008; Bissell Library, Reference Desk (004.072 THE)
- Pascal Algorithms: a Pascal-based introduction to computer science /; Reilly, Edwin D.; 1989; Bissell Library, General Stacks (005.262 PAS)
- Security systems and software; 1999; Bissell Library, Staff Office (VC 005.26 SEC)
- The computer: a very short introduction /; Ince, D.; 2011; Eleftheriades Library, General Stacks (004.16 INC)
- Eyewitness encyclopedia of science: the essential multimedia reference guide to science and technology; 1994; Eleftheriades Library (CD 503 EYE)
- Java collections: an introduction to abstract data types, data structures, and algorithms /; Watt, David A.; 2001; Bissell Library, General Stacks (005.133 WAT)
- Fundamentals of data structures in Pascal /; Horowitz, Ellis; 1984; Bissell Library, General Stacks (005.262 PAS)
- Neural networks and fuzzy systems: a dynamical systems approach to machine intelligence /; Kosko, Bart; 1992; Bissell Library, General Stacks (006.3 KOS)
- The First Book of Information Science /; Becker, Joseph; 1973; Eleftheriades Library (004.09 BEC)
- Fuzzy sets, neural networks, and soft computing /; 1994; Bissell Library, General Stacks (006.3 FUZ)
- Partitioning data sets: DIMACS workshop, April 19-21, 1993 /; 1995; Bissell Library, General Stacks Upper Level (621.367 PAR)
- Cognitive vision systems: sampling the spectrum of approaches /; 2006; Bissell Library, General Stacks (006.37 COG)
- Creating successful software for your customer; 1999; Bissell Library, Staff Office (VC 005.26 CRE)
- The global network and object-oriented programming; 1999; Bissell Library, Staff Office (VC 005.26 GLO)
- The history of software; 1999; Bissell Library, Staff Office (VC 005.26 HIS)
- Object-oriented data structures using Java / Dale, Nell B.; 2002; Bissell Library, General Stacks (005.133 DAL)
- Darwin among the machines / Dyson, George; 1998; Eleftheriades Library (006.3 DYS)
- Data structures & algorithms in Java / Lafore, Robert; 2003; Bissell Library, Reference Desk (005.73 LAF)
- In the image of the brain : breaking the barrier between the human mind and intelligent machines /; Jubak, Jim; 1992; Eleftheriades Library (006.3 JUB)
- Intelligent systems for finance and business /; 1995; Bissell Library, General Stacks Upper Level (658.0563 INT)
- Data structures in Java : a laboratory course / Andersen, Sandra; 2002; Bissell Library, General Stacks (005.133 AND)
- *JavaScript : the definitive guide* / Flanagan, David; 2002; Bissell Library, General Stacks (005.2762 FLA)
- Computer models for operations management /; Hall, Owen P.; 1993; Bissell Library, General Stacks Upper Level (658.5 HAL)
- Statistical principles of research design and analysis /; Kuehl, R. O.; 1994; Bissell Library, General Stacks (001.422 KUE)
- Theoretical models in biology : the origin of life, the immune system, and the brain /; Rowe, Glenn; 1994; Bissell Library, General Stacks (570.0113 ROW)
- Simulating neural networks with Mathematica /; Freeman, James A.; 1994; Bissell Library, General Stacks (006.3 FRE)
- The Internet for scientists and engineers : online tools and resources /; Thomas, Brian J.; 1996; Bissell Library, General Stacks (004.67 THO)
- HAL's legacy : 2001s computer as dream and reality /; 1997; Bissell Library, General Stacks (004 HAL)
- Software engineering with B /; Wordsworth, J. B.; 1996; Bissell Library, General Stacks (005.133 WOR)
- Compiler construction /; Wirth, Niklaus; 1996; Bissell Library, General Stacks (005.453 WIR)
- The F programming language /; Metcalf, Michael; 1996; Bissell Library, General Stacks (005.133 MET)
- Principles of artificial intelligence and expert systems development /; Rolston, David W.; 1988; Bissell Library, General Stacks (006.3 ROL)
- The art of computer programming; Knuth, Donald Ervin; 1973; Bissell Library, General Stacks (005.1 KNU)
- Object-oriented programming via Fortran 90/95 /; Akin, J. E.; 2003; Bissell Library, Reference Desk (005.133 AKI)
- The elements of UML style /; Ambler, Scott W.; 2003; Bissell Library, General Stacks (005.117 AMB)
- Programming with objects : a comparative presentation of object-oriented programming with C++ and Java /; Kak, Avinash C.; 2003; Bissell Library, General Stacks (005.133 KAK)
- Memory as a programming concept in C and C++ /; Franek, F.; 2004; Bissell Library, General Stacks (005.435 FRA)
- Game architecture and design /; Rollings, Andrew; 2004; Bissell Library, General Stacks (005.26 ROL)
- Algorithms /; Sedgewick, Robert ;1983; Bissell Library, General Stacks (519.4 SED)
- Virtual reality /; Rheingold, Howard; 1991; Eleftheriades Library (501.13 RHE)
- Algorithms and data structures /; Wirth, Niklaus; 1986; Bissell Library, General Stacks (005.73 WIR)
- Information, randomness & incompleteness : papers on algorithmic information theory /; Chaitin, Gregory J.; 1990; Eleftheriades Library (511.3 CHA)
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