Programme Requirements: Stage 3 2017/18

The following tables give details of compulsory and optional modules for each programme of study. For the three year programme you must take 240 credits overall in Stages 2 and 3. For the four year programme you must take 360 credits overall in Stages 2, 3 and 4: a total of 120 credits in each Stage. At least 210 credits must be at level 5 or above, including at least 90 credits at Level 6 or above at Stage 3. Each of Stages 2 and 3 consist of 120 credits.

Further instructions for registration for optional modules are available at:

https://www.cs.kent.ac.uk/cas/InfoStudents/OMR/

In choosing optional modules you should ensure that you have taken or are taking necessary pre-requisite modules (see table 1). The particular optional modules taught in any one year are subject to registration numbers and staffing constraints. A module may be withdrawn if an insufficient number of students register for it.

IT IS ULTIMATELY YOUR RESPONSIBILITY TO ENSURE THAT YOU ARE REGISTERED FOR THE CORRECT MODULES FOR YOUR PROGRAMME.

After the start of the Autumn Term, any module changes must be made by Friday 6 October 2017 using a module change form available from the Student Admin Office. However, permission to change modules may be restricted particularly for modules delivered by other schools (e.g. Business or Philosophy modules) and you should ensure that you give careful consideration to your proposed choices prior to the on-line registration process in the Spring Term.

Full module specifications can be found on the following University web pages:

http://www.kent.ac.uk/stms/studying/modules/index.html

The online module catalogue http://www.kent.ac.uk/courses/modulecatalogue/index.html contains information about all academic modules taught at the University. You can browse collections of modules or can search by module code or module title.
**Computer Science (three and four year programmes) [CS] [CS-S]**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Term Taught</th>
<th>Level</th>
<th>Credit Value</th>
</tr>
</thead>
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<tr>
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<td><strong>Required modules:</strong></td>
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</tr>
<tr>
<td>CO600</td>
<td>Group Project</td>
<td>A&amp;S</td>
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</tr>
<tr>
<td>or</td>
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<td></td>
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</tr>
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<td>Research Project</td>
<td>A&amp;S</td>
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<tr>
<td>or</td>
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<td>CO650</td>
<td>IT Consultancy Project*</td>
<td>A&amp;S</td>
<td>6</td>
<td>30</td>
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</tbody>
</table>

Together with modules totaling 90 credits from the following. There should normally be an even split (45 credits) in each term. In choosing options you should ensure you have taken or are taking necessary pre-requisite modules (see table 1). At least 90 credits at Level 6 or above must be taken at Stage 3 so no more than 30 credits of Level 5 modules may be taken from the list below.

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>CO633</td>
<td>Computer Networks and Communication</td>
<td>A</td>
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<td>CO634</td>
<td>Computer Security and Cryptography</td>
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<td>6</td>
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<tr>
<td>CO636</td>
<td>Cognitive Neural Networks</td>
<td>A</td>
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<td>CO637</td>
<td>Natural Computation</td>
<td>A</td>
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<td>15</td>
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<td>6</td>
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</tr>
<tr>
<td>CO645</td>
<td>IT Consultancy Practice 2*</td>
<td>AorS</td>
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<td>CO646</td>
<td>Computing in the Classroom*</td>
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<td>6</td>
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<td>CO663</td>
<td>Programming Languages: Applications and Design (Subject to approval)</td>
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<td>6</td>
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<tr>
<td>CO832</td>
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<td>S</td>
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<td>CB612</td>
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<td>Image Analysis and Applications</td>
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<td>Philosophy of Cognitive Science and Artificial Intelligence</td>
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</table>

* acceptance on these modules is subject to interview

+CO832 has a pass mark of 50%
Computer Science (Artificial Intelligence) (three and four year programmes) [CS(AI)] [CS(AI)-S]

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<td>IT Consultancy Project’</td>
<td>A&amp;S</td>
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<td></td>
<td>or</td>
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<td>CO637</td>
<td>Natural Computation</td>
<td>A</td>
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<td>15</td>
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</table>

Together with optional modules totaling 60 credits. Overall you should register for an even split of modules across each term.

In choosing options you should ensure you have taken or are taking necessary pre-requisite modules (see table 1) At least 90 credits at Level 6 or above must be taken at Stage 3

<table>
<thead>
<tr>
<th>Code</th>
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<th>Term Taught</th>
<th>Level</th>
<th>Credit Value</th>
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</table>

* acceptance on these modules is subject to interview
+CO832 has a pass mark of 50%
## Computer Science (Consultancy) (three and four year programmes) [CS(CON)] [CS(CON)-S]

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Together with modules totaling 75 credits from the following. Overall, there should normally be an even split of modules across each term. In choosing options you should ensure you have taken or are taking necessary pre-requisite modules (see table 1). **At least 90 credits at Level 6 or above must be taken at Stage 3**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Term</th>
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<th>Credit</th>
<th>Value</th>
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<td>CO634</td>
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<td>CO636</td>
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<tr>
<td>CO643</td>
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<td>15</td>
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<td>Internet of Things</td>
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<tr>
<td>CO659</td>
<td>Computational Creativity</td>
<td>S</td>
<td>6</td>
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<tr>
<td>CO832</td>
<td>Data Mining and Knowledge Discovery+</td>
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<tr>
<td>CB612</td>
<td>New Enterprise Development</td>
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</table>

* acceptance on these modules is subject to interview

+ CO832 has a pass mark of 50%
Computer Science (Networks) (three year programme) [CS(NET)], [CS(NET)-S]

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<th>Code</th>
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<td>Required modules:</td>
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<tr>
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<td>Group Project</td>
<td>A&amp;S</td>
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<td>30</td>
</tr>
<tr>
<td>or</td>
<td>Research Project</td>
<td>A&amp;S</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>or</td>
<td>IT Consultancy Project*</td>
<td>A&amp;S</td>
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<td>CO633</td>
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<td>CO634</td>
<td>Computer Security and Cryptography</td>
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<td>15</td>
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</tbody>
</table>

Together with modules totaling 60 credits from the following. There should normally be an even split of modules across each term. In choosing options you should ensure you have taken or are taking necessary pre-requisite modules (see table 1). At least 90 credits at Level 6 or above must be taken at Stage 3.

<table>
<thead>
<tr>
<th>Code</th>
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<td>CO636</td>
<td>Cognitive Neural Networks</td>
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<td>CO646</td>
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<tr>
<td>CO657</td>
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<tr>
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<td>Programming Language Implementation</td>
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<tr>
<td>CO659</td>
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* acceptance on these modules is subject to interview

+CO832 has a pass mark of 50%
### Computing and Business Administration (three and four year programmes) [CoBA], [CoBA-S]

<table>
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<tr>
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<th>Credit Value</th>
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<td>or CO620</td>
<td>Research Project</td>
<td>A&amp;S</td>
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<td>30</td>
</tr>
<tr>
<td>or CO650</td>
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<td>A&amp;S</td>
<td>6</td>
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<td>CB520</td>
<td>Service Management</td>
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<td>Corporate and Business Strategy (CB676 pre-requisite)</td>
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Together with modules totaling 60 credits from the following. There should normally be an even split (30 credits) in each term. In choosing options students should ensure they have taken or are taking necessary pre-requisite modules (see table 1). **At least 90 credits at Level H or above must be taken at Stage 3 so no more than 30 credits of Level I modules may be taken from the lists below.**

At least 30 credits from:

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<th>Credit Value</th>
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<tbody>
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<td>5</td>
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<td>CO539</td>
<td>Web Development</td>
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<td>CO636</td>
<td>Cognitive Neural Networks</td>
<td>A</td>
<td>6</td>
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<tr>
<td>CO645</td>
<td>IT Consultancy Practice 2*</td>
<td>AorS</td>
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<td>CO646</td>
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<td>CO832</td>
<td>Data Mining and Knowledge Discovery*</td>
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The remaining 30 credits may be taken from the computing list above or from the following:

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<td>Digital Marketing Strategy</td>
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<td>5</td>
<td>15</td>
</tr>
<tr>
<td>ECS66</td>
<td>Macroeconomics for Business</td>
<td>S</td>
<td>5</td>
<td>15</td>
</tr>
</tbody>
</table>

*acceptance on these modules is subject to interview

+CO832 has a pass mark of 50%
Web Computing (three and four year programmes) [WCo], [WCo-S]

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Term Taught</th>
<th>Level</th>
<th>Credit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Required modules:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO600</td>
<td>Computing Project</td>
<td>A&amp;S</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO620</td>
<td>Research Project</td>
<td>A&amp;S</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL600</td>
<td>Solo Project</td>
<td>A&amp;S</td>
<td>6</td>
<td>45</td>
</tr>
</tbody>
</table>

Together with modules totaling 90 credits (or 75 credits if EL600 is taken) from the following. Overall there should normally be an even split in each term. In choosing options students should ensure they have taken or are taking necessary pre-requisite modules (see table 1) **At least 90 credits at Level H or above must be taken at Stage 3 so no more than 30 credits of Level I modules may be taken from the list below. You may only take one 15 credit Business module**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Term Taught</th>
<th>Level</th>
<th>Credit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO539</td>
<td>Web Development</td>
<td>A</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>CO633</td>
<td>Computer Networks and Communication</td>
<td>A</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CO634</td>
<td>Computer Security and Cryptography</td>
<td>A</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CO636</td>
<td>Cognitive Neural Networks</td>
<td>A</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CO637</td>
<td>Natural Computation</td>
<td>A</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CO641</td>
<td>Computer Graphics and Visualisation</td>
<td>S</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CO643</td>
<td>Computing Law and Professional Responsibility</td>
<td>A</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CO646</td>
<td>Computing in the Classroom*</td>
<td>S</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CO657</td>
<td>Internet of Things</td>
<td>A</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CO659</td>
<td>Computational Creativity</td>
<td>S</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CO832</td>
<td>Data Mining and Knowledge Discovery+</td>
<td>S</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>CB587</td>
<td>Digital Marketing Strategy</td>
<td>A</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>CB612</td>
<td>New Enterprise Start-up</td>
<td>A</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>EL561</td>
<td>Image Analysis and Applications</td>
<td>S</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>EL667</td>
<td>Embedded Computer Systems</td>
<td>A&amp;S</td>
<td>6</td>
<td>15</td>
</tr>
</tbody>
</table>

* acceptance on these modules is subject to interview

+CO832 has a pass mark of 50%
**Diploma in Computer Science**

Students registered for the Diploma in Computer Science must take modules totalling 120 credits chosen from the modules in the table in Section 4.3. At least 90 credits must be at Level 5 or above. Diploma students normally undertake a project: CO600 Group Project, or CO620 Research Project. The remaining modules may be chosen subject to pre-requisite knowledge, timetabling and other constraints. Subject to approval from the school concerned students may take modules offered by the School of Engineering and Digital Arts or by the School of Mathematics, Statistics and Actuarial Science. However students must take a minimum of 90 credits of computing modules. Selection of modules is undertaken in discussion with the adviser to short-term student, Dr Julio Hernandez-Castro.
### Computing Modules: levels, credits, terms, weightings and pre-requisites

For module descriptions see: [http://www.kent.ac.uk/courses/modulecatalogue/index.html](http://www.kent.ac.uk/courses/modulecatalogue/index.html)

The particular optional modules taught in any one year are subject to registration numbers and staffing constraints. A module may be withdrawn if an insufficient number of students register for it.

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Title</th>
<th>Level</th>
<th>Credits</th>
<th>Term (see Note 1)</th>
<th>Module Weightings</th>
<th>Pre-requisites</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO324</td>
<td>Computer Systems</td>
<td>4</td>
<td>15</td>
<td>A</td>
<td>cw</td>
<td>50, 50</td>
<td></td>
</tr>
<tr>
<td>CO510</td>
<td>Software Engineering</td>
<td>5</td>
<td>30</td>
<td>A&amp;S</td>
<td>50, 50</td>
<td>CO334, CO520</td>
<td></td>
</tr>
<tr>
<td>CO518</td>
<td>Algorithms, Correctness &amp; Efficiency</td>
<td>5</td>
<td>15</td>
<td>A</td>
<td>30, 70</td>
<td>CO325, CO520</td>
<td></td>
</tr>
<tr>
<td>CO519</td>
<td>Theory of Computing</td>
<td>5</td>
<td>15</td>
<td>A</td>
<td>50, 50</td>
<td>CO520, CO325 or (CO523)</td>
<td></td>
</tr>
<tr>
<td>CO520</td>
<td>Further Object-Oriented Programming</td>
<td>5</td>
<td>15</td>
<td>S</td>
<td>100</td>
<td>CO320</td>
<td></td>
</tr>
<tr>
<td>CO523</td>
<td>Fundamentals of Programming and Logic Operating Systems and Architecture</td>
<td>5</td>
<td>15</td>
<td>A</td>
<td>100</td>
<td>-</td>
<td>See note 8</td>
</tr>
<tr>
<td>CO527</td>
<td>Introduction to Intelligent Systems</td>
<td>5</td>
<td>15</td>
<td>S</td>
<td>50, 50</td>
<td>CO520 or CO523</td>
<td></td>
</tr>
<tr>
<td>CO532</td>
<td>Database Systems</td>
<td>5</td>
<td>15</td>
<td>S</td>
<td>40, 60</td>
<td>CO323, or CO523</td>
<td></td>
</tr>
<tr>
<td>CO539</td>
<td>Web Development</td>
<td>5</td>
<td>15</td>
<td>A</td>
<td>50, 50</td>
<td>CO320, CO323</td>
<td></td>
</tr>
<tr>
<td>CO545</td>
<td>Functional and Concurrent Programming</td>
<td>5</td>
<td>15</td>
<td>S</td>
<td>50, 50</td>
<td>CO320 or CO523</td>
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<tr>
<td>CO600</td>
<td>Group Project</td>
<td>6</td>
<td>30</td>
<td>A&amp;S</td>
<td>100</td>
<td>CO510</td>
<td>See note 2 &amp; 6</td>
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<tr>
<td>CO620</td>
<td>Research Project</td>
<td>6</td>
<td>30</td>
<td>A&amp;S</td>
<td>100</td>
<td>CO510</td>
<td>See note 2, 6, &amp; 10</td>
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<tr>
<td>CO633</td>
<td>Computer Networks and Communications</td>
<td>6</td>
<td>15</td>
<td>A</td>
<td>40, 60</td>
<td>CO322, CO324, CO325, CO520</td>
<td></td>
</tr>
<tr>
<td>CO634</td>
<td>Computer Security and Cryptography</td>
<td>6</td>
<td>15</td>
<td>A</td>
<td>30, 70</td>
<td>CO324, CO527</td>
<td>See note 9</td>
</tr>
<tr>
<td>CO636</td>
<td>Cognitive Neural Networks</td>
<td>6</td>
<td>15</td>
<td>A</td>
<td>20, 80</td>
<td>CO322</td>
<td>See note 3</td>
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<tr>
<td>CO637</td>
<td>Natural Computation</td>
<td>6</td>
<td>15</td>
<td>A</td>
<td>40, 60</td>
<td>CO322, CO325, CO520 or (CO523)</td>
<td>See note 3</td>
</tr>
<tr>
<td>CO641</td>
<td>Computer Graphics and Animation</td>
<td>6</td>
<td>15</td>
<td>S</td>
<td>50, 50</td>
<td>CO520 or CO523</td>
<td></td>
</tr>
<tr>
<td>CO643</td>
<td>Computing Law and Professional Responsibility</td>
<td>6</td>
<td>15</td>
<td>A</td>
<td>50, 50</td>
<td>CO510</td>
<td>See note 5</td>
</tr>
<tr>
<td>CO645</td>
<td>IT Consultancy Practice 2</td>
<td>6</td>
<td>15</td>
<td>A&amp;S</td>
<td>100</td>
<td>CO510</td>
<td>See note 6 7</td>
</tr>
<tr>
<td>CO646</td>
<td>Computing in the Classroom</td>
<td>6</td>
<td>15</td>
<td>S</td>
<td>25, 75</td>
<td>CO510</td>
<td>See note 11</td>
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<tr>
<td>CO650</td>
<td>IT Consultancy Project</td>
<td>6</td>
<td>30</td>
<td>A&amp;S</td>
<td>100</td>
<td>CO510</td>
<td>See note2 6 7</td>
</tr>
<tr>
<td>CO657</td>
<td>Internet of Things</td>
<td>6</td>
<td>15</td>
<td>A</td>
<td>100</td>
<td>CO320, CO323, CO324, CO325, CO520, CO527, CO545</td>
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</tr>
<tr>
<td>CO658</td>
<td>Programming Language Implementation</td>
<td>6</td>
<td>15</td>
<td>S</td>
<td>60, 40</td>
<td>CO324, CO527, CO545</td>
<td></td>
</tr>
<tr>
<td>CO659</td>
<td>Computational Creativity</td>
<td>6</td>
<td>15</td>
<td>S</td>
<td>50, 50</td>
<td>CO320, CO520</td>
<td></td>
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<tr>
<td>CO663</td>
<td>Programming Languages: Applications and Design</td>
<td>6</td>
<td>15</td>
<td>S</td>
<td>70, 30</td>
<td>CO520, CO545</td>
<td></td>
</tr>
<tr>
<td>CO832</td>
<td>Data Mining and Knowledge Discovery</td>
<td>7</td>
<td>15</td>
<td>S</td>
<td>20, 80</td>
<td></td>
<td>See note 12</td>
</tr>
</tbody>
</table>
Notes
1. “A” indicates that a module is delivered in the Autumn Term and “S” indicates the Spring Term.
2. Credit by compensation or condonement will not be awarded for CO600, CO620, CO650.
3. Modules CO636 CO637 require A-Level Mathematics or equivalent appropriate knowledge (such as CO322/CO325);
4. The pass mark for each Level 4, 5 and 6 module is 40%. The pass mark for Level 7 modules is 50%
5. CO643 has no specified pre-requisites but students should have successfully completed Stage 2 of a Computer Science or related programme.
6. The pass mark for each Level 4, 5 and 6 module is 40%. The pass mark for Level 7 modules is 50%
7. CO643 has no specified pre-requisites but students should have successfully completed Stage 2 of a Computer Science or related programme.
8. In the event of failure of any of CO645, CO600, CO620, CO650 no alternative assessment will be available. Credit can only be retrieved by repeating the module.
9. The maximum number to be admitted to CO645 CO650 will be determined each year by the Kent IT Clinic (KITC) management according to the commercial prospects at the time. Acceptance on these modules is subject to interview.
10. CO643 has no specified pre-requisites but students should have successfully completed Stage 2 of a Computer Science or related programme.
11. In the event of failure of any of CO645, CO600, CO620, CO650 no alternative assessment will be available. Credit can only be retrieved by repeating the module.
12. CO643 has no specified pre-requisites but students should have successfully completed Stage 2 of a Computer Science or related programme.