# Subject Description Form

**Subject Code** | CCN3149  
---|---  
**Subject Title** | Basic Avionics  
**Level** | 3  
**Credit Value** | 3  
**Medium of Instruction** | English  
**Pre-requisite / Co-requisite / Exclusion** | Nil  

## Objectives
This subject aims to provide students with basic knowledge in digital logic and microprocessor system design and the application of the technologies in avionics system design including data buses, displays and power systems of aircraft.

## Intended Learning Outcomes
Upon completion of the subject, students will be able to:

(a) understand the fundamentals of digital systems and associated technologies.

(b) explain the operation principles of typical Electronic / Digital Aircraft Systems.

(c) troubleshoot digital electronic circuits and systems.

(d) apply logic design techniques to design and implement simple digital systems.

## Subject Synopsis/Indicative Syllabus

**Digital System and Logic Circuits**  
Numbering Systems; Data conversion; Common logic gates and integrated circuits.

**Basic Computer Structure and Microprocessors**  
Basic Computer Structure and microprocessors; Software development; Software Management Control.

**Digital Data Communications**  
Computer communication protocol; Transmission media, Data bus.
Electronic Instrument Systems
Typical systems arrangements and cockpit layout of electronic instrument systems; Common types of displays used in modern aircraft.

Digital Avionics Architecture
Avionics system architecture; Data buses ARINC 429–ARINC 629; Aircraft Communications Addressing and Reporting System.

Typical Electronic / Digital Aircraft Systems
Typical Electronic Aircraft Systems such as Electronic Centralised Aircraft Monitoring; Engine Indication and Crew Alerting System; Flight Management System.

Teaching/Learning Methodology
Lectures will be used to introduce and explain theoretical concepts and essential knowledge of digital electronics and avionics systems. Tutorials provide students with the opportunity to comprehend the practical implications of some concepts and to deepen their understanding. Laboratory sessions provide students with the opportunity to acquire hands-on experience in using software and hardware tools to develop simple digital system.

Assessment Methods in Alignment with Intended Learning Outcomes
A variety of assessment tools will be used to develop and assess students’ achievement of the subject intended learning outcomes.

<table>
<thead>
<tr>
<th>Specific assessment methods/tasks</th>
<th>% weighting</th>
<th>Intended subject learning outcomes to be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>a</td>
</tr>
<tr>
<td>Continuous Assessment*</td>
<td>60</td>
<td>✓</td>
</tr>
<tr>
<td>Test</td>
<td>20</td>
<td>✓</td>
</tr>
<tr>
<td>Assignment</td>
<td>20</td>
<td>✓</td>
</tr>
<tr>
<td>Laboratory Report</td>
<td>20</td>
<td>✓</td>
</tr>
<tr>
<td>Final Examination</td>
<td>40</td>
<td>✓</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>✓</td>
</tr>
</tbody>
</table>

*Continuous assessment items and/or weighting may be adjusted by the subject team subject to the approval of the College Programme Committee.

To pass this subject, students are required to obtain Grade D or above in both the Continuous Assessment and Final Examination.

Student Study
Class contact

| Hours |
### Effort Expected

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>24</td>
</tr>
<tr>
<td>Tutorial</td>
<td>11</td>
</tr>
<tr>
<td>Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>Other student study effort</td>
<td></td>
</tr>
<tr>
<td>Self-study</td>
<td>39</td>
</tr>
<tr>
<td>Continuous Assessment</td>
<td>52</td>
</tr>
<tr>
<td><strong>Total student study effort</strong></td>
<td><strong>130</strong></td>
</tr>
</tbody>
</table>

### Reading List and References

**Recommended Textbook**


**References**

