

## 431-328 Digital Systems 3: Circuits and Systems

<b>Credit Points:</b>	12.50
<b>Level:</b>	3 (Undergraduate)
<b>Dates &amp; Locations:</b>	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus.
<b>Time Commitment:</b>	Contact Hours: Thirty-six hours of lectures, 12 hours of tutorials and 12 hours of laboratory work Total Time Commitment: Not available
<b>Prerequisites:</b>	431-204 Digital Systems 2: Systems Design and 431-222 Electronic Circuit Design 1 (prior to 2005 Electronic Devices).
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	None
<b>Non Allowed Subjects:</b>	None
<b>Core Participation Requirements:</b>	<p>For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.</p> <p>It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: <a href="http://services.unimelb.edu.au/disability">http://services.unimelb.edu.au/disability</a></p>
<b>Coordinator:</b>	Dr Peter Dower
<b>Subject Overview:</b>	<p>On completion of this course the student will have an understanding of various realisation issues in digital system design. Topics covered are taken from the following.</p> <p>Switching circuits - switching of bipolar and MOS transistors; characteristics of bipolar, CMOS and mixed bipolar and CMOS logic families; AC/DC noise margins; tools for circuit modelling and simulation; and an introduction to timing issues.</p> <p>Signal integrity analysis and design - introduction to transmission lines and distributed circuits; the eye diagram; printed circuit board (PCB) interconnects and associated electrical characteristics; and analysis and design of point-to-point, point-to-multipoint and multipoint-to-multipoint PCB interconnects.</p>
<b>Objectives:</b>	<p>On completing this subject the student should be able to:</p> <ol style="list-style-type: none"> <li>1. Quantitatively assess the performance and limitations of a variety of digital logic realisation technologies;</li> <li>2. Explain the properties and fundamental limitations of digital interconnects;</li> <li>3. Use software tools to simulate digital systems at the level of electronic circuit realisations.</li> </ol>
<b>Assessment:</b>	One 3-hour end of semester examination, practice classes, tests, laboratory reports and notebooks, assignments, tutorial attendance and project reports. Students will be notified of the weighting of assessment components at the beginning of the semester.
<b>Prescribed Texts:</b>	None
<b>Recommended Texts:</b>	Information Not Available

<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	<ul style="list-style-type: none"> <li># ability to apply knowledge of basic science and engineering fundamentals</li> <li># ability to communicate effectively, not only with engineers but also with the community at large</li> <li># in-depth technical competence in at least one engineering discipline</li> <li># ability to undertake problem identification, formulation and solution</li> <li># ability to utilise a systems approach to design and operational performance</li> <li># ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member</li> <li># expectation of the need to undertake lifelong learning, capacity to do so</li> <li># capacity for independent critical thought, rational inquiry and self-directed learning</li> <li># intellectual curiosity and creativity, including understanding of the philosophical and methodological bases of research activity</li> </ul>
<b>Related Course(s):</b>	Bachelor of Engineering (Computer Engineering) Bachelor of Engineering (Computer Engineering)/Bachelor of Science Bachelor of Engineering (Computer) and Bachelor of Arts Bachelor of Engineering (Computer) and Bachelor of Commerce Bachelor of Engineering (Computer) and Bachelor of Laws Bachelor of Engineering (Electrical Engineering) Bachelor of Engineering (EngineeringManagement) Computer Bachelor of Engineering (Mechatronics) and Bachelor of Computer Science