# ELEN90043 Device Models

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| **Credit Points:** | 12.50 |
| **Level:** | 9 (Graduate/Postgraduate) |
| **Dates & Locations:** | 2010, Parkville<br>This subject commences in the following study period/s:<br>Semester 1, Parkville - Taught on campus. |
| **Time Commitment:** | Contact Hours: 1 two hour lecture per week Total Time Commitment: 120 hours |
| **Prerequisites:** | None |
| **Corequisites:** | None |
| **Recommended Background Knowledge:** | Basic knowledge and understanding of electronics |
| **Non Allowed Subjects:** | None |
| **Core Participation Requirements:** | For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/ |
| **Coordinator:** | Prof Stan Skafidas |
| **Contact:** | Melbourne School of Engineering Office<br>Building 173, Grattan Street<br>The University of Melbourne<br>VIC 3010 Australia<br>General telephone enquiries<br>+ 61 3 8344 6703<br>+ 61 3 8344 6507<br>Facsimiles<br>+ 61 3 9349 2182<br>+ 61 3 8344 7707<br>Email<br>**eng-info@unimelb.edu.au (mailto:eng-info@unimelb.edu.au)** |
| **Subject Overview:** | Transistors (NMOS, PMOS), Double Gate Transistors, FinFET and Varactors and other active devices are the building blocks of microelectronic and nano-electronic CMOS. This subject will provide the student with the latest models of these devices operating in the multi-gigahertz and sub-threshold regions. Students will be able to design and analyse simple circuits using these models. |
| **Objectives:** | Upon successful completion of this subject students should be able to:<br># Choose the right model for a device and its operating regime;<br># Estimate device performance and noise parameters and use this to design circuits. |
| **Assessment:** | One, written examination (not exceeding three hours) at the end of semester, worth 70%;Continuous assessment of submitted project work (not exceeding 30 pages in total over the semester), worth 30%. |
| **Prescribed Texts:** | None |
| **Breadth Options:** | This subject is not available as a breadth subject. |
| **Fees Information:** | Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees |

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| **Generic Skills:** | # Ability to apply knowledge of science and engineering fundamentals<br># Ability to undertake problem identification, formulation, and solution<br># Ability to utilise a systems approach to complex problems and to design andoperationalperformance<br># Ability to build and test real world systems that meet industry specialisation and manufacturing standards<br># Capacity for lifelong learning and professional development |
| **Related Course(s):** | Master of Nanoelectronic Engineering |