Part B: Course Details

Course Title and Code	ARCH1013 Architecture Technology 1
Campus	City
Learning Mode	Face to Face
Primary Learning Mode	Face to Face
Name and contact details of offering coordinator	Stuart Harrison stuart.harrison@rmit.edu.au
Name and contact details of all other relevant staff	
Teacher guided hours	44
Learner directed hours	112
Learning Activities	Tech1 introduces students to construction principals, through the detail investigation of selected houses assigned to them. Working in groups, students construct two detailed models at different scales, using architectural and structural documentation provided to them. Learning to read drawings and understanding construction principals through making is the primary aim of the subject. Student also kept a journal, or Detail Diary, which is assessed individually. Twice weekly lectures are conducted by members of RMIT staff and guest architects whose houses are used for the model studies. Lectures introduce students to the key concepts relevant in construction technology and architectural practice. Detail is given relating to the construction of small (domestic) buildings. Model Making is a vital component of the course, represent over half the assessment. Model making is taught in lecture format, and then specific project guidance is given in the 10 3 hour tutorials across the semester.
Teaching Schedule	Refer separate time plan for semester for detailed breakdown. Key dates: Lectures commence in week 1 and run until week 6/7 (two/double lectures per week) Tutorials (three hours) commence in week 2 and finish in week 11 (10 total) All work is submitted in final class, week 11.
References	Students are encouraged to obtain: Wilkie, George, Building Your Own Home: A Comprehensive Guide for Australian Owner Builders, Weldon, 2003
Other resources	Other texts are references. 1. History and Theory of Making

	The Details of Modern Architecture Volume 1. Edward R. Ford, The MIT Press Cambridge Massachusetts, 1991 The Details of Modern Architecture Volume 2: 1928-1988. Edward R. Ford The MIT Press Cambridge Massachusetts 1996 Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture. Kenneth Frampton, The MIT Press, Cambridge Massachusetts, 1995 2. Case Study Buildings - Specific articles and material will be kept in a file at the closed reserve section of the Central Library. - The RAIA web site www.architecture.com.au - via www.lib.rmit.edu.au look in 'information resources' for databases of references, notably ARCH, the Australian Architecture Database. Find referenced magazines in the library periodicals section. 3. Construction/Systems Maclean, J & Scott, J, The Penguin Dictionary of Building, Penguin, London, 1964 Reid, Esmond. Understanding Buildings: A Multidisciplinary Approach, MIT Press, Cambridge, Massachusetts, 1984 Building Construction Illustrated 2nd ed; Ching, Francis D.K., VNR, USA, 1991 Lloyd, Clifford. Building Construction metricated, Macmillian, South Melbourne, Victoria: Macmillan, 1976. Ogg, Alan. Architecture in Steel: The Australian Context. Red Hill, ACT: Royal Australian Institute of Architects, 1987. Pegrum, Roger. Details in Australian Architecture. Canberra: RAIA Education Division, 1984-c1987. AJ Handbook of Building Structure, Architectural Press, UK AJ Handbook of Building Enclosure, Architectural Press, UK Building Services – Engineering for Architects, R.P.Parlour, Integral Publishing Graphic Guide to Frame Construction: Details for Builders and Designers. Thallon, Rob, Taunton Press USA, 1991 4. Design Standards Adler, David. Metric Handbook: Planning and Design Data. 2nd ed. Oxford: Architectural Press, 1999. Neufert Architects Data 3rd Edition; Blackwell, UK, 2000 Time Saver Standards for Architectural Design Data 7th ed Watson, D & Crosbie, M & Callender, J. Mc Graw Hill USA, 1997 The Building Code of Australia (BCA) & Australian Standards Available through RMIT Library (online) or www.standards.com.au 5. Graphic Standards Architectural Graphics; Ching, Francis D.K., 1996 Ramsey, Charles George and Sleeper, Harold R. Architectural Graphic Standards, 6th ed. New York: John Wiley, 1970. AS1100.101-1992 Technical Drawing – General Principles, AS1100.301-1985 Technical Drawing - Architectural Drawing

	6. Trade Literature Refer to your tutor for manufacturers of specific products. Boral plasterboard, masonry Capral aluminium glazing suites Carter Holt Harvey plywood CSR Gyprock plasterboard, acoustic/fire rated Hardies compressed fibre cement sheet Hyne timber framing Lysaght/BHP steel framing and cladding Nubrik masonry Pilkington glass Rondo steel wall and ceiling framing 7. Organisations Forest and Wood Products Australia (FWPA) - http://www.timber.org.au/ Cement Concrete & Aggregates Australia - Plywood Association of Australia 8. Web based www.architecture.com.au www.deathbyarchitecture.com www.greatbuildings.com www.architecture.com (RIBA) www.infolink.com.au www.selector.com.au 9. Magazines Detail Architecture Australia Architectural Review Australia The Architect's Journal (UK) The Architectural Review (UK) 2G International Architecture Review (Spain) A+U (Japan)

Assessment tasks	Analysis is the key word in the assignment task, literally requiring you to take the house apart to understand its component systems. Tutorial sessions will be structured around set drawing / model making exercises to develop your understanding of the technical information conveyed in the set of working drawings. The exercise requires you to develop an understanding of the house as a three dimensional object which has a material reality. Exercises introduce ways of breaking the building down into manageable components, to understand the constituent elements of the house, before producing the final models. The process of working through the set tasks to arrive at an informed understanding of the issues is a critical part of the assignment. You are therefore encouraged to build numerous study models, to sketch and diagram aspects of the house to demonstrate your ability to translate two dimensional information, embodied in the working drawings, into three dimensions. In addition you are expected to undertake research tasks in your own time to adequately fulfill the expectation of this exercise. You may need to consult a product manufacturer and obtain detailed technical information (i.e. dimensional information) on a particular product or building system. You are also encouraged to safely view building sites on a regular basis throughout the semester, recording through sketches, different constructional systems relevant to your case study project. These drawings should be supplemented in a 'detail diary' with sketches of architectural features and componentry you observe daily. Models and drawings will be progressively presented throughout the semester with a final submission of work for assessment in week 11. Objectives 1. Develop your understanding of building systems and how they become integrated into building design. 2. To develop your understanding of plan, section and elevation as system of visual communication. 3. Introduce you to analytical frameworks that can facilitate the application of technical knowledge to design tasks. 4. Expose you to architectural and engineering documentation drawings. 5. Introduce you to concepts of scale and hierarchy of information. Final Submission Requirements. Exercises 1-3 are all based on the case study house assigned to you, and are to be worked on in pairs, assigned by your tutor. **1. Structural System Model scale 1:50** Only represent the components of the building which are performing a structural role. It should show footings, framing components, columns, beams, trusses. This model requires you to be able to identify structural systems and will require some knowledge of a framed structural system with horizontal and vertical spans. Other structural systems may be load bearing masonry walls, concrete slabs. Consider the relationship of material to structural form.

	2. Construction Model scale 1:1 This is literally a piece of the building you have studied. A detail of the wall, floor, roof or cladding system in relation to a key section junction such as turning a corner, wall / eaves, wall / floor, wall / opening. The model should be large enough to show the different layers of the wall system and sufficient surface area to indicate material spans, fixings, flashings, weather proof membranes, internal linings, cavity. This model develops your understanding of constructional systems. It should be cross referenced to the structural system and form models. Model making tasks are scaled for potential cross-referencing of information and for you to become aware of the different ways of thinking about technical information - from abstract concepts and principles to detailed information. **3. Drawings** Four A3 sheets showing your research and process of arriving at the final models. Each sheet to be neatly composed, photocopied, spray mounted onto white foam core backing. Each A3 sheet to show: sketches, diagrams, researched information on the building, material components, the architect, ideas, components, assembly sequence, component drawings. **4. Detail Diary** In an A5 notebook keep 2 and 3D sketches of common details sourced from the buildings around you, the case study buildings and reference texts. Supplement with photographs. Note location, motivation and application of details. Drawings should be hand sketches, aim to develop the skill of drawing to scale and an awareness of the size of things. Details might include: door and window frames (in different materials, junctions, corners, joinery, gutters… (Individual exercise, to be supplemented throughout semester). Questions for consideration: Structure: Is the structural system exposed or concealed? How does the structural system relate to the form of the building? Can you identify any structural details such as connections, junctions which have been given special design attention. How do you think the structural system works (compression / tension etc)? Construction: Can you identify a particular attitude the architect has towards the use of material i.e. detailing, cheap materials, elegant details, no details, natural finish, are materials hidden and covered with finishes? Sequence: try to establish the pattern of assembly, which trades start first, what is the constructional sequence from ground to roof - from framing to internal finish? This section provides the student with specific details about how they will be required to demonstrate their learning in this course.

	It may also describe the evidence they could build up to include, for example, in a CV or portfolio to show the capabilities they are acquiring. Each assessment task should: Be described in some detail (that is more that simply naming the type as essay or examination for example) Be linked to the learning outcomes so that it is clear to the student how all learning outcomes are assessed. Provide students with an overview of the assessment criteria that you will be using (ie describe what you will be looking for when you are marking their work, including examinations) and when detailed information about the assessment task and criteria will be distributed Specify the weighting of each assessment task as a percentage of the total assessment Specify the submission time and the date Refer students to the general information about assessment grades and any specific requirements to pass the course.
Other relevant information	STUDENT LEARNING PROGRAM Learning is an interactive, participatory process involving both teachers and students and the success of the class depends on the levels of input from all the participants. Lecture Series The following describes in general terms the content of the lecture series. A timetable will be handed out at the lecture in week 1. Introduction - Overview of Architectures' Relationship to Technology: a conceptual approach to the coordination of design ideas and technical requirements of a building. - Knowledge Development of systems thinking and its impact upon the design of buildings. The lecture will consider the relationship between the conceiving (the thinking) and the making of architecture as core components of an approach to the semesters program. Systematisation of information in design drawing, working drawings and specifications. Implications of different scales. Drawn information, written information. - Case study. Various buildings from contemporary and historical periods discussed. Environmental and Servicing Systems - Overview. Performance of a building over time and how this might inform design strategies. Building services and how they interrelate to other systems discussed in previous weeks. - Knowledge. Introduction to the concept of passive and active means of modifying the climate of a building. Consideration of the climatic performance of the building over its life time rather than an idealised frozen moment. Thermal mass, material performances, ventilation, heat, cold, insulation. Implications for the designer and coordination with the other weekly topics discussed during this course. Innovations in climatic response devices. The environmental engineer as consultant in the design

	process. Coordination with other technical systems. Introduction to different servicing systems, electrical, hydraulic, mechanical. The impact of servicing systems upon building design. Architects attitudes toward concealing or revealing servicing systems. Various consultants in the design process. The impact of services on the spatial ordering of architecture. Coordination with other technical systems. - Case Study. Various buildings from contemporary and historical periods discussed Structural Systems - Overview. Introduction to elemental structural systems and how they are conceived in relation to the spatial ordering of a building. - Knowledge. Structural and material performance of various structural systems. Dimensional modulation. Attitudes of concealing or expressing structure, hybrid systems, pure systems, the concept of economy. Stability. Detailing structure, connections, joining, touching the ground. The structural engineer as consultant in the design process. Coordination with other technical systems. - Case study. Various buildings from contemporary and historical periods discussed Constructional Systems - Overview. Articulating processes of making as a consequence of design ideas. - Knowledge. Introduction to attitudes of making. Modulation of a building determined by material constraints. Processes of making such as extruding, cutting, folding, bending. Material selection, technical data and idea. The legible building as a consequence of an attitude to detailing the skin, frame, wall, roof, meeting the ground. The dematerialised building. Openings. Weather, maintenance. Coordination with other technical systems. - Case Study. Various buildings from contemporary and historical periods discussed Synthesis - Overview. Synthesis of the lectures series and relating this knowledge to the assignment task. - Knowledge. Discussion by practicing architects illustrating how they relate technical information to building design. - Case Study. Various buildings designed by local practitioners. Refer to separate time plan for outline of suggested tutorial activities