

PROGRAMME SPECIFICATION

1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	MArch
4	Programme Title	Architecture
5	Programme Code	5843
6	Programme Accreditation	The Architects Registration Board (ARB) and the Royal Institute of British Architects (RIBA)
7	QAA Subject Benchmark(s)	Architecture (2010)
8	FHEQ Level	7
9	Last updated	May 2012

10 Programme Aims

The programme aims to:

1. Develop the ability to generate complex design proposals showing understanding of current architectural issues, originality in the application of subject knowledge and, where appropriate, to test new hypotheses and speculations;
2. Develop the ability to evaluate and apply a comprehensive range of visual, oral and written media to test, analyse, critically appraise and explain design proposals;
3. Develop an ability to evaluate materials, processes and techniques that apply to complex architectural designs and building construction, and to integrate these into practicable design proposals;
4. Develop a critical understanding of how knowledge is advanced through research to produce clear, logically argued and original written work relating to architectural culture, theory and design;
5. Promote an understanding of the context of the architect and the construction industry, including the architect's role in the processes of procurement and building production, and under legislation;
6. Develop problem solving skills, professional judgment, and ability to take the initiative and make appropriate decisions in complex and unpredictable circumstances; and
7. Develop an ability to identify individual learning needs and understand the personal responsibility required to prepare for qualification as an architect.
8. Provide a programme which complies with University policies and procedures, satisfies the requirements of the Framework for Higher Education Qualifications for a level 7 award, satisfies the requirements of the QAA Benchmark statement for Architecture and meets the requirements of the Architects Registration Board and the Royal Institute of British Architects for professional accreditation for Part 2, as well as the European Commission's Architects Directive.

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the Architects Registration Board prescription of qualifications (2011), Article 46 of the EC Professional Qualifications Directive [2005/36/EC] and the QAA benchmark statements for Architecture (2010).

Knowledge and Understanding

In general, upon completing the programme students will have demonstrated:

- a systematic understanding of knowledge, and a critical awareness of current problems and new insights which is at, or informed by, the forefront of the academic discipline or professional practice of Architecture.
- a comprehensive understanding of techniques applicable to research or advanced scholarship in Architecture
- an ability to be original in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create, interpret and apply knowledge within the discipline of Architecture

In particular, students will have demonstrated:

A1) Knowledge of urban design, planning and the skills involved in the planning process (ARB / RIBA General Criteria GC4).

Including a knowledge of:

- a) theories of urban design and the planning of communities;
- b) the influence of the design and development of cities, past and present on the contemporary built environment;
- c) current planning policy and development control legislation, including social, environmental and economic aspects, and the relevance of these to design development.

A2) Understanding of the relationship between people and buildings, and between buildings and their environment, and the need to relate buildings and the spaces between them to human needs and scale (GC5).

Including an understanding of:

- a) the needs and aspirations of building users;
- b) the impact of buildings on the environment, and the precepts of sustainable design;
- c) the way in which buildings fit into their local context.

A3) Understanding of the profession of architecture and the role of the architect in society, in particular in preparing briefs that take account of social factors (GC6).

Including an understanding of:

- a) the nature of professionalism and the duties and responsibilities of architects to clients, building users, constructors, co-professionals and the wider society;
- b) the role of the architect within the design team and construction industry, recognising the importance of current methods and trends in the construction of the built environment;
- c) the potential impact of building projects on existing and proposed communities.

A4) Knowledge of physical problems and technologies and the function of buildings so as to provide them with internal conditions of comfort and protection against the climate (GC9).

Including knowledge of:

- a) principles associated with designing optimum visual, thermal and acoustic environments;
- b) systems for environmental comfort realized within relevant precepts of sustainable design;
- c) strategies for building services, and ability to integrate these in a design project.

A5) Knowledge of the industries, organisations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning (GC11).

Including knowledge of:

- a) the fundamental legal, professional and statutory responsibilities of the architect, and the organisations, regulations and procedures involved in the negotiation and approval of architectural designs, including land law, development control, building regulations and health and safety legislation;
- b) the professional inter-relationships of individuals and organisations involved in procuring and delivering architectural projects, and how these are defined through contractual and organisational structures;
- c) the basic management theories and business principles related to running both an architect's practice and architectural projects, recognising current and emerging trends in the construction industry.

Teaching and Learning Methods

Acquisition of knowledge and understanding is achieved through a combination of lectures, seminars, study visits, case studies, debates, reviews and studio based tutorials. Students are expected to augment the formal teaching sessions and readings with independent observation, analysis and reading.

Assessment Strategy

Assessment methods and their relation to learning outcomes are specified in each individual module outline. Knowledge and understanding is assessed through a combination of unseen examinations and by various forms of coursework – essays, case studies, dissertations, student presentations and design project work.

Intellectual Skills

In general, on completing the programme students should have demonstrated a conceptual understanding that enables them to:

- critically evaluate current research, advanced scholarship and contemporary practice within Architecture
- evaluate methodologies and develop critiques of them and, where appropriate, to propose and apply new hypotheses

In particular, students will have demonstrated:

B1) Knowledge of the histories and theories of architecture and the related arts, technologies and human sciences (GC2).

Including a knowledge of, and ability to evaluate and / or apply:

- a) the cultural, social and intellectual histories, theories and technologies that influence the design of buildings;
- b) the influence of history and theory on the spatial, social, and technological aspects of architecture;
- c) appropriate theoretical concepts to studio design projects, demonstrating a reflective and critical approach.

B2) Knowledge of the fine arts as an influence on the quality of architectural design (GC3).

Including a knowledge of, and ability to evaluate:

- a) how the theories, practices and technologies of the arts influence architectural design;
- b) the creative application of the fine arts and their relevance and architecture;
- c) the creative application of such work to studio design projects, in terms of their conceptualisation and representation.

B3) Understanding of the methods of investigation and preparation of the brief for a design project (GC7).

Including the knowledge and skills to:

- a) critically review precedents relevant to the function, organisation and technological strategy of design proposals;
- b) appraise and prepare building briefs of diverse scales and types, to define client and user requirements and their appropriateness to site and context;
- c) recognize the contributions of architects and co-professionals to the formulation of the brief, and the methods of investigation used in its preparation.

Teaching and Learning Methods

The development of Intellectual skills is achieved through a combination of lectures, seminars, study visits, case studies, debates, reviews and studio based tutorials. Studio design projects and personal research projects such as the dissertation and the design thesis provide opportunities for students to develop their intellectual skills through the awareness, evaluation and application of architectural knowledge. Students are expected to augment the formal teaching sessions and readings with independent observation, analysis and reading and through informal discussion and debate with their peers.

Assessment Strategy

Assessment methods and their relation to learning outcomes are specified in each individual module outline. Intellectual skills are generally assessed in an integrative way through various forms of design project work and through written work including essays and dissertations.

Practical Skills

In general, on completing the programme students should have demonstrated the following practical skills:

- an ability to deal with complex issues both systematically and creatively, make sound judgments and communicate conclusions and ideas to a range of audiences

- self-direction and originality in tackling and solving problems and the ability to act autonomously and at a professional level
- recognition of the importance of continuing to advance their knowledge, understanding and skills

In particular, students will have demonstrated:

C1) Ability to create architectural designs that satisfy both aesthetic and technical requirements (GC1).

Including the ability to:

- a) prepare and present building design projects of diverse scale, complexity, and type in a variety of contexts, using a range of media, and in response to a brief;
- b) understand the constructional and structural systems, the environmental strategies and the regulatory requirements that apply to the design and construction of a comprehensive design project;
- c) develop a conceptual and critical approach to architectural design that integrates and satisfies the aesthetic aspects of a building and the technical requirements of its construction and the needs of the user.

C2) Understanding of the structural design, constructional and engineering problems associated with building design (GC2).

Including the ability to:

- a) investigate, critically appraise and select alternative structural, constructional and material systems relevant to architectural design;
- b) appraise strategies for building construction, and the ability to integrate knowledge of structural principles and construction techniques;
- c) appraise the physical properties and characteristics of building materials, components and systems, and the environmental impact of specification choices.

C3) The necessary design skills to meet building users' requirements within the constraints imposed by cost factors and building regulations.

Including the skills to:

- a) critically examine the financial factors implied in varying building types, constructional systems, and specification choices, and the impact of these on architectural design;
- b) understand the cost control mechanisms which operate during the development of a project;
- c) prepare designs that will meet building users' requirements and comply with UK legislation, appropriate performance standards and health and safety requirements.

Teaching and Learning Methods

The development of Practical skills is achieved mainly through the integrative environment of the design studio projects and through student reviews and presentations. Lectures in professional practice help students to contextualise practical skills within the context of architectural practice. Students are expected to augment the formal teaching sessions and readings with independent observation, analysis and reading.

Assessment Strategy

Assessment methods and their relation to learning outcomes are specified in each individual module outline. Practical skills are mainly assessed in an integrative way through various forms of design project work and through written essays / submissions.

Transferable/Key Skills

On completing the programme students should be able to:

D1) Communicate effectively through the use of visual, verbal and written methods and through appropriate media including sketching, modelling, digital and electronic techniques

D2) Work effectively as part of a team

D3) Identify and manage individual learning needs so as to prepare for and maintain professional standards commensurate with qualification

D4) Demonstrate self-direction, originality and creativity in tackling and solving problems

D5) Exercise initiative and personal responsibility

Teaching and Learning Methods

Verbal communication skills are developed through student participation in design reviews, student presentations and seminars. Graphic communication skills are developed through iterative application in design project work. Computer based skills including CAD modelling are developed through the project work. Writing skills are developed through the production of reports and essays. Team working skills are developed through participation in design projects and self-direction and initiative are encouraged through an emphasis on student-centred learning where appropriate.

Assessment Strategy

Key and transferable skills, particularly those requiring verbal and graphic communication, are usually assessed holistically as part of the design project work. Writing skills are assessed through essays, dissertations and unseen examinations. The skills of personal time management, self-direction and independent learning are an essential component of studio design culture.

12 Programme Curriculum, Structure and Features**Basic structure of the programme**

The programme extends over two years full-time and is structured on a modular basis. Each year, or 'Stage' of study, consists of 120 credits, normally 60 in each semester. Each module has a credit value. 10 credits is designed to require 100 hours of student work, including taught and contact time, assessment work and 'student-centred learning'. Modules vary in size from 10 to 80 credits. The core content of the programme is covers the ARB's Criteria for Part 2 (2011) and the RIBA outline syllabus (2011), the QAA benchmark statement for Architecture (2010) and the European Commission Architects Directive. The programme is split between core modules (180 credits) and optional related studies (60 credits) that allow students to develop a specialism in areas such as Urban Design, Town Planning or Digital Architecture.

The standard pattern of study is as follows:

Stage 1		Stage 2	
Semester 1	Semester 2	Semester 1	Semester 2
ARC 8050 Architectural Design (40) Or ARC8054 Architectural Design (40)	ARC 8052 Architectural Design (40) ARC8054 Architectural Design (40)	ARC 8060 Architectural Design (80)	
		ARC8061 Architecture and Construction (10)	
ARC 8051 Tools for Thinking About Architecture (20)	ARC8053 Dissertation A (20)	ARC8062 Dissertation B (20) or ARC8064 (20) Thesis Research Document	ARC 8067 Academic Portfolio (10)

Subject to the agreement of the DPD it is also possible to substitute modules ARC 8053 and ARC 8062 and to pursue 40 credits of linked research modules. It is also an option to substitute modules ARC 8051, ARC8053 and ARC8062 and to pursue a 60 credit block of specialist modules from other Masters programmes within the school. Including accelerated routes in Digital Architecture and Town Planning.

The information (below) gives a brief outline of the curriculum at each stage. More detailed information is contained in the BArch Programme Handbook.

Key features of the programme (including what makes the programme distinctive)

The School of Architecture, Planning and Landscape has established an International reputation for its research into Architectural History and Theory and Architectural Humanities. The MArch structure and curriculum aims to build on this strength through research informed teaching and through an emphasis on intellectual development and exploration and the fostering of an independent, research-led attitude towards design. The School is also uniquely positioned to deliver cross / inter-disciplinary teaching in related areas such as Urban Design, Landscape and Planning and there are opportunities for students to pursue specialist studies in these areas together with the option for accelerated routes to related Masters qualifications. Overall, the programme aims to develop graduates who are able to make a positive contribution to architectural practice underpinned by a theoretically informed and reflective approach to design.

The development of integrated design skills is central to the programme and accounts for a total of 160 credits delivered across the two years. In Stage 1 there are two 40 credit core *Design* modules **ARC8050 and ARC8052 (or ARC8054, 80 credits)**. These modules are organised into projects taken over the course of the two semesters. Although the theme and content of the design projects change regularly, Semester 1 aims to build upon the foundations of Part 1 by developing a critical awareness of a range of contemporary architectural issues and by encouraging students to research, develop, test, and articulate their own particular architectural standpoint. There is an emphasis on developing an awareness of the social context of design and on brief making that responds appropriately to client needs through rigorous research and analysis. Design projects also seek to develop graphic skills and encourage an imaginative approach to design and its representation. Design projects will involve both group and individual work and will engage students in a creative dialogue with staff and their peers.

During Semester 2 the design projects explore a material and practical imagination. Students are encouraged to engage with materiality and making, and through the design of architectural fragments and details demonstrate how these inform wider architectural ideas, whether formal, tectonic or theoretical. The design project integrates an awareness of issues related to technology and the environment. This project engages students with some of the key design skills and knowledge that are necessary for the successful design of a major building project. These skills extend to the detailed declaration of the tectonic (including technical and legislative issues) and material aspects of proposed designs.

In Stage 2 students develop their design skills through **ARC8060: Architectural Design (80)**. The module is organised around the development and declaration of an individual design thesis. The thesis is developed in semester 1 in consultation with staff and through a range of design exercises.

Throughout the two years of the programme the design studio is underpinned and informed by related modules that aim to support the design process and to widen and deepen students understanding of the broader context of architecture.

In Semester 1 of stage 1 **ARC8051: Tools for Thinking About Architecture (20 credits)** aims to give a broad survey of contemporary theoretical and cultural issues in architecture and situates design practice within contemporary social, economic, political and historical debates. Students have the opportunity to develop these themes through the production of a Dissertation. The Dissertation spans both stages of the programme and is organised into two modules (each equivalent to 20 credits). The written Design Dissertation aims to provide a foundation for the subsequent Design Thesis and during Semester 2 of Stage 1 students undertake **ARC8053 Dissertation in Architecture A** through which they undertake broad research into their chosen themes / subject and this supports the separate production of a Design thesis proposal by the end of the semester. In semester 1 of Stage 2 students undertake **ARC8062: Dissertation in Architecture B** where they develop and write-up the dissertation which is submitted at the end of Semester 1. Students who do not wish to pursue a dissertation can elect to take a Linked Research option (subject to availability) and would take modules **ARC8058 Linked Research 1** and **ARC8068 Linked Research 2**. Students who elect to go on exchange in Semester 2 of Year 1 take **ARC8064 Thesis Research Document (20 credits)** in semester 1 of year 2 allowing them to write-up a body of research related to their subsequent design thesis.

In Stage 2 the **ARC8061: Architecture and Construction (10 credits)** and **ARC8067 Academic Portfolio (10)** aim to build practical knowledge and communication skills. ARC8061 gives an insight into construction methods, buildability, specifications, costs and procurement methods. This knowledge is directly related to the development of the design thesis. ARC8067 encourages students to reflect on their own personal development and learning outcomes achieved through the two-year programme. The academic portfolio maps these outcomes onto the ARB / RIBA syllabus whilst also providing a succinct summary of the students achievements to both external examiners and potential employers.

Related and Specialist Studies

In addition to the core Architecture curriculum there is also a related studies or Special Topics programme. Students can elect to take 40 credits of specialist modules in Stage 1 and 20 credits in stage 2. The options are in Architectural History and Theory, Digital Architecture, Landscape Architecture, Urban Design, Town Planning and Sustainability. These are mostly related to other Masters level programmes in the School. The option in Town Planning is part of an RIBA/RTPI accredited route that can lead to the award of the Master of Town Planning degree. Options also include one or two semester exchange schemes with schools of architecture in Aachen, Barcelona, Bruxelles, Paris, Lausanne, and Singapore which gives students an opportunity both to experience education in a different culture and to develop their language skills.

Programme regulations (link to on-line version)

<http://www.ncl.ac.uk/regulations/programme/>

13 Criteria for admission

Entry qualifications

Internal candidates must normally have a 2.1 degree or better. Internal candidates with a 2.2 degree may be considered for entry on the basis of an interview. Internal candidates with a degree class of lower than a 2.2 will not be considered.

All external candidates to the degree must normally have a 2.1 degree or better and will be considered on an individual basis.

Admissions policy/selection tools

Interview with portfolio

Non-standard Entry Requirements

Additional Requirements

Successful candidates will usually have been awarded RIBA Part 1 and in most cases will have completed a period of appropriate work experience.

Applicants without RIBA/ARB Part I:

Applicants from institutions recognised by Newcastle University who hold an undergraduate degree in Architecture, which does not carry RIBA/ARB Part I validation, will also be considered for admission.

These candidates are required to submit official transcripts, proof of graduation, and an academic portfolio of their work for review by the admissions committee.

External applicants without Part I qualifications should note that:

The completion of Part II at Newcastle does not exempt students from fulfilling the requirement to complete RIBA/ARB Part I. Therefore if candidates plan to practice in the UK, they will need to take an external exam - which is organized by the ARB. For further information, please see http://www.arb.org.uk/registration/how_to_register/overseas_and_non-recognised_uk_qualifications.php

Similarly, if candidates plan to practice in another country, it is their responsibility to ensure that their education meets that country's requirements for registration as an architect.

14 Support for Student Learning

The Student Services portal provides links to key services and other information and is available at: <http://www.ncl.ac.uk/students/>

Induction

During the first week of the first semester students attend an induction programme. New students will be given a general introduction to University life and the University's principle support services and general information about the School and their programme, as described in the Degree Programme Handbook. New and continuing students will be given detailed programme information and the timetable of lectures/practicals/labs/ tutorials/etc. The

International Office offers an additional induction programme for overseas students.

Study skills support

Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification. Some of this material, e.g. time management is covered in the appropriate Induction Programme. Students are explicitly tutored on their approach to both group and individual projects.

Numeracy support is available through Maths Aid and help with academic writing is available from the Writing Centre (further information is available from the Robinson Library).

Academic support

The initial point of contact for a student is with a lecturer or module leader, or their tutor (see below) for more generic issues. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Staff-Student Committee, and/or at the Board of Studies.

Pastoral support

All students are assigned a personal tutor whose responsibility is to monitor the academic performance and overall well-being of their tutees. This will usually be the Stage coordinator for each year of the Programme. The School also has a Senior Tutor and Student Support Manager who are responsible for student welfare. In addition the University offers a range of support services, including one-to-one counselling and guidance or group sessions / workshops on a range of topics, such as emotional issues e.g. Stress and anxiety, student finance and budgeting, disability matters etc. There is specialist support available for students with dyslexia and mental health issues. Furthermore, the Union Society operates a Student Advice Centre, which can provide advocacy and support to students on a range of topics including housing, debt, legal issues etc.

Support for students with disabilities

The University's Disability Support Service provides help and advice for disabled students at the University - and those thinking of coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support arrangements; a resources room with equipment and software to assist students in their studies.

Learning resources

The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and Information Systems and Services, which supports campus-wide computing facilities.

All new students whose first language is not English are required to take an English Language Proficiency Test. This is administered by INTO Newcastle University Centre on behalf of Newcastle University. Where appropriate, in-session language training can be provided. The INTO Newcastle University Centre houses a range of resources which may be particularly appropriate for those interested in an Erasmus exchange.

15 Methods for evaluating and improving the quality and standards of teaching and learning

Module reviews

All modules are subject to review by questionnaires which are considered by the Board of Studies. Changes to, or the introduction of new, modules are considered at the Board of Studies and/or the School Teaching and Learning Committee. Student opinion is sought at the Staff-Student Committee and/or the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty Teaching and Learning Committee.

Programme reviews

The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching and Learning Committee. The FTLC takes an overview of all

programmes within the Faculty and reports any Faculty or institutional issues to the University Teaching and Learning Committee.

External Examiner reports

External Examiner reports are considered by the Board of Studies. The Board responds to these reports through Faculty Teaching and Learning Committee. External Examiner reports are shared with institutional student representatives, through the Staff-Student Committee.

Student evaluations

All modules, and the degree programme, are subject to review by student questionnaires. Informal student evaluation is also obtained at the Staff-Student Committee, and the Board of Studies. The results from student surveys are considered as part of the Annual Monitoring and Review of the programme and any arising actions are captured at programme and School / institutional level and reported to the appropriate body.

Mechanisms for gaining student feedback

Feedback is channelled via the Staff-Student Committee and the Board of Studies.

Faculty and University Review Mechanisms

The programme is subject to the University's Internal Subject Review process. Every five years degree programmes in each subject area are subject to periodic review. This involves both the detailed consideration of a range of documentation, and a two-day review visit by a review team which includes an external subject specialist in addition to University and Faculty representatives. Following the review a report is produced, which forms the basis for a decision by University Teaching and Learning Committee on whether the programmes reviewed should be re-approved for a further five year period.

Accreditation reports

The programme is reviewed every four years by the Architects Registration Board (ARB) and the Royal Institute of British Architects (RIBA) to ensure compliance with the Part 2 curriculum. Accreditation reports are available from the RIBA website (www.architecture.com).

Additional mechanisms

16 Regulation of assessment

Pass mark

The pass mark is 50

Course requirements

Progression is subject to the University's Masters Degree Progress Regulations, Taught and Research and Examination Conventions for Taught Masters Degrees. Limited compensation up to 40 credits of the taught element and down to a mark of 40 is possible and there are reassessment opportunities, with certain restrictions.

The University employs a common marking scheme, which is specified in the Taught Postgraduate Examination Conventions, namely:

Summary description applicable to postgraduate Masters programmes

Summary description applicable to postgraduate Certificate and Diploma programmes

<50	Fail
50-59	Pass
60-69	Pass with Merit
70 or above	Pass with Distinction

<50	Fail
50 or above	Pass

Role of the External Examiner

An External Examiner, a distinguished member of the subject community, is appointed by Faculty Teaching and Learning Committee, following recommendation from the Board of Studies. The External Examiner is expected to:

- i. See and approve assessment papers
- ii. Moderate examination and coursework marking
- iii. Attend the Board of Examiners
- iv. Report to the University on the standards of the programme

In addition, information relating to the programme is provided in:

The University Prospectus: <http://www.ncl.ac.uk/postgraduate/>

The School Brochure <http://www.ncl.ac.uk/marketing/services/print/publications/ordering/>

Degree Programme and University Regulations: <http://www.ncl.ac.uk/regulations/docs/>

The Degree Programme Handbook

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

Mapping of Intended Learning Outcomes onto Curriculum/Modules

Intended Learning Outcome	Module codes (Compulsory in Bold)
A1	ARC8050/ARC8054, ARC8060, ARC8061 , TCP8001, TCP8010, TCP8910
A2	ARC8050/ARC8054, ARC8052/ARC8054, ARC8060 , TCP8910, TCP8929, ARC8064
A3	ARC8050/ARC8054 , TCP8902, TCP8929
A4	ARC8052/ARC8054
A5	ARC8061
B1	ARC8051 , TCP8010, ARC8015, ARC8062, ARC8053, ARC8064
B2	ARC8051
B3	ARC8050/ARC8054, ARC8052/ARC8054, ARC8060 , ARC8064
C1	ARC8050/ARC8054, ARC8052/ARC8054, ARC8060 , ARC8027, ARC8017, ARC8016
C2	ARC8052/ARC8054, ARC8060
C3	ARC8050/ARC8054, ARC8052/ARC8054, ARC8060, ARC8061
D1	ARC8050/ARC8054, ARC8052/ARC8054, ARC8060 , ARC8017, ARC8016, ARC8062, ARC8053, ARC8064
D2	ARC8050/ARC8054, ARC8052/ARC8054 , TCP8910, ARC8016, ARC8058, ARC8068
D3	ARC8050/ARC8054, ARC8052/ARC8054, ARC8060, ARC8061 , , ARC8064
D4	ARC8050/ARC8054, ARC8052/ARC8054, ARC8060 , TCP8910, ARC8017, ARC8016, ARC8062, ARC8053, ARC8058, ARC8068, ARC8064
D5	TCP8902, ARC8062, ARC8053, ARC8058, ARC8068, ARC5020, ARC5025, ARC8064