Report on:

Architectural Curriculum Development at Uganda Martyrs' University (UMU)

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Architectural Curriculum Development at UMU

Discussions: Ali Cheshmehzangi (UNNC) and Alex Ndibwami (UMU) – 14-09-2015

Currently, the programme is focused on design studio units, in which students are introduced to topics under each of the given themes and work towards development of design projects. In each design studio module, students are given a series of lectures, workshops, workshops and design tutorials. Tasks are divided clearly with adequate loading system, allowing for design development over the course of one semester.

Here, we identified three modules that are potentially suitable for further development or integration with outcomes of the ELITH project:

1	ENDS-2111 Urban and Regional Planning and Design (Level 2, Semester 1) *Contact Hours: up to 9 hours of lectures/tutorials/seminars per week*	p. 44 last year Urban – large scale
2	ENDS-3113 Sustainable Built Environments *Contact Hours: up to 10 hours of lectures/tutorials/seminars per week* *This module is undertaken in association with ELITH, JENGA and PREA projects. The site is in the context of Kampala, Uganda.*	p. 51 last year Housing scale
3	ENDS-3271 Architecture Design Project (Level 3, Semester 2) *Contact Hours: up to 10 hours of lectures/tutorials/seminars per week*	p. 54 last year Urban – building scale

Review of above modules:

1. ENDS-2111
   - very comprehensive in terms of introduction to urban planning, design and landscape architecture; perhaps heavy-loaded with a variety of learning outcomes;
   - The focus is somewhat unclear; possibilities to include a more environmental or sustainability focus, or to focus on either an urban or a rural context instead.
2. ENDS-3113
   - This module is in association partly with the ELITH project.
   - Possibility to focus on housing scale alone?
   - Requirement for technical elements as part of design development and decision making process would be beneficial.
3. ENDS-3271
   - The focus of design project is on mixed-use or community building in an urban area;

Reviewing through existing modules and the experience from UNNC, we discussed four scenarios that can be undertaken as part of one specific module development.

Potential approaches:

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Option 1: Introduce the module as an elective module as part of a core design module/course;

Option 2: feed into sections on environmental performance, lighting and the wind environment;

Option 3: Slipping ENDS-2111 in to two sections similar to ENDS-2142 and introduce some of the elements that can support the module based on the ELITH project (Also similar to EE2IDB module at UNNC which was in two sections of 'larger scale assessment' and 'block remodelling'.

Option 4: Development of a module as a stand-alone module with 2 to 4 contact hours a week, focusing on theories and specific topics rather than a design studio project or a large module; here, the focus is on a compulsory module to support design studio course/module.

Options	Pros.	Cons.
1. As an ELECTIVE module	As a supporting technical material for one existing module; This can run as a technical module.	High possibilities for students not undertaking the module; or lack of interest in general (since it will be elective); It may be an additional load with additional requirement of resources.
2. Feeding in to SECTIONS of the existing module as TECHNICAL parts	This can run in a block teaching of 2 to 3 weeks, which can include experts from the field for a short period; This will help modification of one existing module to shape an ELITH-related module over the years.	This will add to the content of an existing module, meaning there is a requirement for replacement of a section (if needed); There will be limitations on how technical or focused the sections can become.
3. Dividing the existing module in to TWO PARTS	This is relatively more suitable based on existing examples from other modules; This will allow a continuous approach from introduction to technical elements and theories to practice and design development.	The integration between the two parts should be done in an order of supporting the design module, meaning that the module requires careful re-planning.
4. Stand-alone non-design small module with focused technical elements	This can be a supportive module to core modules of design as a non-elective module (unlike option 1); A non-design module can include elements of research, critical thinking through research and case study analysis with a better focus; Similar approach was undertaken for a module at UNNC.	It may be an additional load with additional requirement of resources; Integration in to the existing curriculum seems to be difficult in a short term.

Feasibility Analysis:

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Based on our discussions, options 3 and 4 are more feasible within two routes of design or non-design nodules.

Curriculum Development Plan (based on two most feasible options)	Start time
Option 3 can potentially support a module in transition to develop in to a technical design module with a theme on 'housing design', including elements of: - 'material selection', - 'embodied energy analysis', - 'construction methods', - 'passive design strategies'; and - 'design optimisation'. These proposed elements require technical support throughout the semester allowing a period of 3-5 weeks for design testing, design improvement, and design optimisation. Some existing modules already use software like Eco-Tect as part of this process. In here, a more technical approach can be provided to allow calculation of: - 'cost reduction' for construction; - 'embodied energy reduction through material use and construction methods'; - and 'energy efficiency enhancement', through material use and operation. The technical section of the module should not appear as a separate section of the module, but rather integrated as part of design development and optimisation process. A focus on housing will enable the module to develop based on outcomes and continuity of the ELITH project.	Potentially can run in Spring Semester (2015/16)
Option 4 can run as a non-design technical module supporting design modules, but including separate exercise of design thinking (not complete design), technical calculations and improvement suggestions. A similar approach was undertaken at UNNC for a non-design module. This enables us to have a focus on a technical module providing a local case study (a new housing model) and work on methods of improvement and optimisation. Unlike option 3, there is less load for teaching (perhaps 2 to 4 hours) Assignments can be divided in to two (report) sections of: A- Case study selection, introduction, analysis and technical evaluation (group work – 40%); and B- Case study improvement methods, design thinking suggestions, optimisation and calculation of costs, energy use, etc. (individual work – 60%). The module can be arranged in a mixed arrangement of lectures, workshops, seminars and sessions of tutorials for each of the two parts. Similar to option 3, the lectures topics can include elements of: - 'material-use analysis', - 'embodied energy analysis', - 'construction methods', - 'passive design strategies'; and - 'methods of design optimisation'.	Potentially can run in 2016/17 or thereafter

Suggestion for topics based on Capacity of some ELITH outcomes

Ali Cheshmehzangi (UNNC) – 15-09-2015 to 04-10-2015

Based on our expected outcomes and the importance of some ELITH sub-topics in the context of Uganda, the focus of a proposed module/course can be in three areas of:

1) Sustainable Development;
2) Housing;
3) Energy.

The above themes include sub-themes for further exploration as part of the module:

Sustainable Development	Housing	Energy
Policy and Practice in Sustainable Development	Vernacular Housing in Uganda: Principles and Design	Embodied Energy Analysis for Dwellings
Comprehensive assessment for housing development	Eco-house/Passive design studies: introduction and processes	Passive Design Strategies and cooling
Environmental Simulation for housing development	Sustainable Material Selection for Housing	Energy and Environment: Urban and Rural cases
Artisanal Methods for Housing Construction	Low-carbon strategies for housing	Environmental Implications Analysis

Moreover, each of the above elements can become a central part of a proposed design studio project, or as a stand-alone taught module. Based on the review of UMU's architecture curriculum, I believe there are possibilities for: 1) 'module load adjustments', 2) 'revising the balance between taught and design studio modules', and 3) 'restructuring a core module based on ELITH outputs.

Two Key Issues at UMU and [possible] suggestions

Based on our discussions at UMU, there are two major challenges of 'lack of resources' (for teaching) and 'concerns with quality of some architectural design students'.

Here are some suggestions that can potentially support to overcome the challenges:

1. *Lack of Resources:*

Based on the number of students and modules at FoBE, UMU, there is presence of heavy-loaded modules that often includes a wide variety of teaching elements, such as, tutorials, studio teaching, lectures, seminars and workshops. To avoid this, I would suggest for breaking the modules to a more focused approach; e.g. rather than a module covering all aspects of urban planning/regional planning/rural planning/landscape architecture, the focus can be on 'rural community planning' only. Alternatively, the structure of heavy-loaded modules can potentially change to one core 'design module' with one or two supporting 'taught modules'. This allows flexibility in teaching. Another potential is having a supporting module (with a smaller load) that can feed in to two or three design studio modules in order to share resources of teaching across few modules.

Other possibility is to create a 'vertical design studio' for year 2 and year 3 (as an example – or year 3 and 4, depending on the overall course structure), in which two groups of students from two

consecutive years (not from year 1) are working on a same site or context/area with two separate briefs of design projects at two different scales and programmes. They can be linked together to avoid disparity in learning outcomes and teaching methods. In this method, teaching resources can be shared across two heavy-loaded design studio modules in two years of the programme. This is also a flexible (and efficient) way of teaching design studio modules, enhancing possibilities for peer learning and cross-disciplinary studies.

2. *Concerns with quality of some architectural design students:*

It is very common to have students in the architecture programme whom are not necessarily sharp in design skills and often have no aspiration to become architects or designers. These students may lack design skills but can still be relatively good students in other modules of non-design nature (either taught or technical modules). Here are two possibilities:

Option A:
Introducing a 'Technical Programme' of two years (if undergraduate Bachelor Degrees is a three-year programme – and three years if a four years programme). You can set a qualifying year situation for year 1 students. If there is no progression in design modules, they can then be directed to this new programme. Subsequently, this will avoid the termination of students' studies at UMU.

Within this 'Technical Programme', there is a possibility to include elements of 'architectural technologies', 'architectural simulation', 'design optimisation and improvement case studies', some elements of 'building services' and few similar elements with no design modules. However, modules can be shared across the two programmes (i.e. Architecture and this technical programme). This will allow creating a balance between graduates in architecture and other architectural disciplines (that are potentially in decline). It is also important to have more technical graduates than just designers or architects, whom have hands-on experience and in-depth knowledge of technicality and technologies in architecture and the built environment. There should also be a reasonably good job market after graduation as well.

Option B:
Introducing a less possible 'theoretical programme' of two years (similar to above), with elements of 'architectural history', 'architectural language', 'architectural theory' and etc. Graduates from this type of programme may struggle with finding jobs in the architectural practice, and often end of doing an MSc, MA, M.Arch or MPhil or continue to do a PhD to become theoretical researchers or lecturers. A theoretical programme is a less attractive option due to employability issues; but on the other hand, it can be a light programme for students who are not interested in design or are not good designers.

To sum-up the whole report , I would suggest to restructure one module for next semester (Spring 2016) in order to include some of the outputs from the ELITH project and some contribution from the ELITH team during April 2016 where you can have a block-teaching period of one or two weeks. Further discussions can take place in April 2016, where we aim to expand on ideas and curriculum development issues at UMU. *– Ali Cheshmehzangi.*