



**KIGALI INSTITUTE OF SCIENCE AND TECHNOLOGY  
INSTITUT DES SCIENCES ET DE TECHNOLOGIE DE KIGALI**

Avenue de l'Armée, B.P. 3900 Kigali, Rwanda

**FACULTY OF ENGINEERING**

**Department: CIVIL ENGINEERING & ENVIRONMENTAL  
TECHNOLOGY**

**BSc(Honours) Degree in CIVIL ENGINEERING**

**PROGRAMME SPECIFICATION**

Prepared in November 2008 and updated in November 2009, July & Dec 2011

# PROGRAMME SPECIFICATION FORM

## 1. PROGRAMME DETAILS

1 <b><u>Programme Title</u></b>	Degree in Civil Engineering			
2 <b><u>Exit Awards</u></b>	BSc(Honours) in Civil Engineering			
3 <b><u>Modes of Attendance</u></b> (please tick)	Part-time		Full-time	✓
	Distance Learning		Work-based Learning	
	Other (please		Short course	
4 <b><u>Resource group:</u></b> (See Notes of Guidance)	1		5	✓
	2		6	
	3		Other (write in)	
	4			
5 <b><u>First year of presentation</u></b>	2008		Current Session (short courses only)	

6 <b><u>Programme</u></b> <b><u>Organiser/Leader:</u></b>	Mr.G.SENTHIL KUMARAN
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7 <b><u>Programme Development Team</u></b>	
<b>Name</b>	<b>Faculty</b>
Mr.G.Senthil Kumaran M.Eng(Structures),Dip.Arch, (Chair)	FOE
(Library Representative)	
(CIT Centre Representative)	
Dr.MBEREYHO Leopold PhD (Technical Sciences)	FOE
Dr. Abu TERZUNGWE (Soil Mechanics)	FOE
Mr.Francis KAINAMURA M.Sc (Construction)	FOE
8 <b><u>Faculty/ School/Centre administratively responsible for the programme</u></b>	
FOE✓	FOS
SOLAS	CITC
CITT	CCE

## **2. PROGRAMME FUNDING AND NEED FOR RESOURCES (changes since Programme Proposal Form)**

**See Section 11**

**Student numbers:            Intake per year: 40            into Level: 1**  
**Eventual population, all years: 160**

## **3. PROGRAMME AIMS AND RATIONALE**

According to vision 2020, Rwanda is committed to reaching “Universal Education for All”, which is one of the most important Millennium Development Goals. However, there is a need to educate and train people at all levels with special attention paid to the quality of education.

This programme specification has been produced to conform to the Rwandan National Qualifications Framework for Higher Education Institutions. Use has also been made of the Standard for Professional Engineering Competence (UK-SPEC) of the Engineering Council of the UK to ensure the proposed curriculum is of an International Standard.

Since the beginning of KIST, the Department of Civil Engineering and Environmental Technology has been training students in Civil and Environmental Technology. However, it was difficult to cover all subjects of Civil Engineering as well as Environmental Technology due to time constraints

This program provides the student with a thorough knowledge ground in Civil Engineering together with a proper appreciation of the role of the engineer in society, so that the students have the skills needed for a wide range of professional careers as a leader in engineering practice and business, technology research and development. This programme have a degree structure that is relevant to students, industry and staff, and responsive to changes in technology and the needs of the industry.

Finally, this course will provides the students with a lively, informed learning environment, which gains maximum benefit from the internationally respected research being carried out by the academic staff and which develops independent learning and ethos of lifelong professional development.

### **AIMS AND PHILOSOPHY OF THE BSc(Honours) in Civil Engineering**

With the rapid development of infrastructure and industry in Rwanda, there is a growing need for Civil Engineering graduates educated to BSc. level. Civil Engineers have had a profound influence on society. Public health, transportation, commerce and the environment have all benefited from the work of Civil Engineers. Design of structures, management, construction, surveying and information technology are just a

few of the areas students could find themselves working in a career that offers variety, travel and immense job satisfaction

This degree programme aims to address this need and provide an engineering education of an international standard that meets the educational requirement for a professional engineer and so contribute to the aspirations of the **Vision 2020** for the Republic of Rwanda. In its degree programme the Department of Civil Engineering aims to be able to define, analyze and solve civil engineering problems to reach proper conclusions and to communicate these conclusions with others.

### **Educational Aims of the BSc(Honours) in Civil Engineering**

The main objective of the programme is to meet the needs for the present and prospective infrastructure development and construction sectors for skilled graduate civil engineers. The programme has the following educational aims:

- ✓ The general aim is to provide a programme of study for civil engineers to meet the demands of their profession and enable them to progress to the status of Incorporated Engineer.
- ✓ A specific aim of the programme is to promote an active interest in civil engineering and to encourage students to respond to changes and developments within their profession.
- ✓ To enable graduates to exercise of sound judgment, personal responsibility, originality and initiative in making engineering decisions in complex and unpredictable environments.
- ✓ To train engineers to a level that will enable them to function independently and effectively in construction industry.
- ✓ To provide a knowledge and understanding of latest theories and developments in civil engineering
- ✓ To understand the design and management processes relevant to civil engineering
- ✓ To encourage critical awareness and understanding of other professionals in the construction industry.
- ✓ To allow progression in career and educational development giving opportunities to study for an Internationally recognised civil engineering degree and
- ✓ To produce graduates of an international standard by meeting the qualification descriptors for Level 5(Bachelor Degree) of the Rwandan National Qualifications Framework for Higher Education Institutions.
- ✓ To train and educate Civil Engineers to be a competent engineers in the working environment
- ✓ To provide opportunities to further to develop their careers and develop a wider understanding of the civil engineering process and
- ✓ To understand the importance of the professionalism, management and problem solving techniques for civil engineering works.

#### **4. PROGRAMME LEARNING OUTCOMES (include modules not bearing credit)**

##### **A. Knowledge and Understanding**

At the end of the programme students should be able to demonstrate knowledge and understanding of:

- A1. The fundamental concepts, principles and theories of civil engineering.
- A2. The principles of Design and code of practice of Steel and Reinforced Concrete Structures
- A3. Water supply, sanitary systems and Environmental Engineering
- A4. Design of Highway, Railway and Airport standards, Transportation planning and Traffic Engineering process
- A5. Surveying, GIS and its applications in civil engineering
- A6. Applied Mathematics, Basic Science and Engineering sciences relevant to civil engineering
- A7. Soil mechanics, Geotechnics and Building Materials
- A8. Civil engineering procurement, managing finance, engineering legalisation, professional ethics and Construction process in civil engineering fields.
- A9. Business and management techniques relevant to Civil Engineering.

##### **B. Cognitive/Intellectual skills/Application of Knowledge**

At the end of the programme students should be able to:

- B1. Define the different alternatives solutions to the Engineering problems
- B2. Design Engineering elements and systems to meet a need, evaluate critically and make improvements of Practical Project Applications
- B3. Critically assess engineering work done by others.
- B4. Apply professional knowledge to produce a commercial risk assessment.
- B5. Apply technical and professional knowledge to assess environmental and social impact of civil engineering activities.
- B6. Use scientific and engineering principles in the development of solutions to problems in civil engineering.

##### **C. Communication/ICT/Numeracy/Analytic Techniques/Practical Skills**

At the end of the programme students should be able to:

- C1. Plan, conduct and prepare technical and managerial report on an individual research programme
- C2. Analyse and solve engineering and management problems, using appropriate mathematical methods as necessary
- C3. Be creative in the solution of problems in design and development
- C4. Integrate and evaluate information and data from a variety of sources

- C5. Take a holistic approach to solving problems and designing systems applying professional judgement to balance risks, cost, benefits, safety, reliability, aesthetics and environmental impact.
- C6. Use computational tools and packages appropriate to civil engineering and give presentations using a variety of media
- C7. Use laboratory and field work equipment to generate data and use competently and safely standard engineering laboratory instrumentation.
- C8. Analyse, evaluate and interpret the experimental and survey results and assess their validity

#### **D. General transferable skills**

At the end of the programme students should be able to:

- D1. Communicative effectively in writing, verbally and drawings
- D2. Apply mathematical skills-algebra, geometry, modelling and analysis
- D3. Learn independently in familiar and unfamiliar situations with open mindedness and in a spirit of critical enquiry
- D4. Work constructively as a members of a team and to manage both time and other sources effectively to meet the deadlines
- D5. Undertake Lifelong Learning
- D6. Use Information and Communication Technology
- D7. Demonstrate general numerical skills and problem solving skills.
- D8. Manage tasks and solve problems, transfer techniques and solutions from one area to another, apply critical analysis and judgement.
- D9. Aspire to belong to national and international professional associations that promote still strong ethical standards and integrity.

## 5. PROGRAMME STRUCTURE (including modules not bearing credit)

Module	L	T	P	Contact Hours	Credit	Level / Semester	Achievement of Level/ Programme Outcomes*
ENG 3101 General English I	24	48	-	72	0	1 / 1	D1
SST 3111 Study Skills for Technology	12	-	24	36	10		C1,D1,D3,D5,D7
MAT 3111 Engineering Mathematics I	24	12	-	36	10		A6,B1,D3,D8
PHY 3112 Engineering Physics	24	6	6	36	10		A6,B6,C7,C8,D3,D8
CHE 3115 Engineering Chemistry	24	6	6	36	10		A6,B6,C7,C8,D3,D8
CIT 3111 International Computer Driving Licence (ICDL)	24	-	12	36	10		C6,D3,D6
MEE 3111 Engineering Drawing & CAD	12	-	24	36	10		A1,B2,C6,D3,D6
<b>Total L1 S1</b>	<b>144</b>	<b>72</b>	<b>72</b>	<b>288</b>	<b>60</b>		
<b>Hours/week</b>				<b>24</b>			
MAT 3121 Engineering Mathematics II	24	12	-	36	10		A6,B1,D3,D8
EEE 3124 Basic Electrical & Electronics Engineering.	24	6	6	36	10		A6,B6,C4,C7,D3
CIT 3121 Computer Programming	12	-	24	36	10		A6,B6,C6,D6
CEE 3122 Engineering Mechanics: Statics & Dynamics	24	6	6	36	10		A1,B2,B6,C7,C8,D3,D7
CEE 3121 Civil Engineering Drawing	12	-	24	36	10		A1,B2,C6,D3,D6
TWP 3122 Workshop Technology (CE & WEE Group)	12	-	36	48	10		A1,B6,C3,D4
<b>Total L1 S2</b>	<b>108</b>	<b>24</b>	<b>96</b>	<b>228</b>	<b>60</b>		
<b>Hours/week</b>				<b>19</b>			
<b>Total Level 1</b>				<b>576</b>	<b>120</b>		
ENG 3201 English for Science & Technology	24	24	-	48	0	2 / 1	D1
MAT 3211 Engineering Mathematics III	24	12	-	36	10		A6,B1,D3,D8
WEE 3211 Appropriate Sanitation Technology	30	-	6	36	10		A1,A3,B6,C4,C7,C8,D3,D8
WEE 3212 Fluid Mechanics	24	6	6	36	10		A1,A3,B2,B6,C6,C7,C8,D2, D3
CEE 3211 Construction Materials	30	-	6	36	10		A1,A7,B2,C3,C5,C7,C8,D3,D8
CEE 3212 Strength of Materials	24	6	6	36	10		A1,A7,B2,B6,C6,C7,C8,D2, D3
CEE 3213 Surveying I	24	-	12	36	10		A1,A5,B2,B3,B6,C1,C4,C6,C7,

							C8,D2,D3,D4, <b>D7,D8</b>
<b>Total L2 S1</b>	<b>180</b>	<b>48</b>	<b>36</b>	<b>264</b>	<b>60</b>		
<b>Hours/week</b>				<b>22</b>			
MAT 3221 Engineering Mathematics IV	24	12	-	36	10		<b>A6</b> ,B1,D3,D8
WEE 3221 Engineering Hydrology	24	-	12	36	10		A1,A3,B2,B6,C6,C7,C8,D2, D3
CEE 3221 Concrete Technology	24	-	12	36	10		A1,A7,B2,C3,C5,C7,C8,D3,D8
CEE 3222 Engineering Geology	30	-	6	36	10		A6,A7,B5,C5,C7,C8,,D3,D4
CEE 3223 Structural Analysis I	30	6	-	36	10		A1,A6,B2,B6,C6,C7,C8,D2, D3
CEE 3224 Surveying II	24	-	12	36	10		A1,A5,B2,B3,B6,C1,C4,C6,C7, C8,D2,D3,D4, <b>D7,D8</b>
<b>Total L2 S2</b>	<b>156</b>	<b>18</b>	<b>42</b>	<b>216</b>	<b>60</b>		
<b>Hours/week</b>				<b>18</b>			
<b>Total Level 2</b>				<b>528</b>	<b>120</b>		
ENG 3301 English for Academic Purposes	12	12	-	24	0	<b>3 / 1</b>	D1
WEE 3311 Water Quality Analysis & Treatment	24	6	6	36	10		A1,A3,B6,C4,C7,C8,D3,D8
CEE 3311 Introduction to Computer Aided Design & Drawing	12	-	24	36	10		A1, <b>A6</b> , <b>B2</b> ,C1,C3,C6,C8,D1,D2, D3, <b>D4</b> ,D5,D6,D7,D8,
CEE 3312 Highway Engineering	24	-	12	36	10		A1,A4,B2,B6,C1,C3,C6,C7,C8, D3,D4
CEE 3313 Reinforced Concrete Design & Project I	30	6	-	36	10		A1,A2,B2,B6,C1,C3,C6,C7,C8, D3,D4, <b>D7,D8</b>
CEE 3314 Soil Mechanics	24	-	12	36	10		A1,A6,A7,B2,B6,C1,C3,C6,C7, C8, D3,D4
CEE 3315 Structural Analysis II	30	6	-	36	10		A1,A6,B2,B6,C6,C7,C8,D2,D3, <b>D7, D8</b>
<b>Total L3 S1</b>	<b>162</b>	<b>30</b>	<b>48</b>	<b>240</b>	<b>60</b>		
<b>Hours/week</b>				<b>20</b>			
WEE 3325 Irrigation & Drainage Engineering	24	6	6	36	10		A1,A3,B2,B6,C6,C7,C8,D2, D3
CEE 3321 Design of Masonry & Timber Structures	30	6	-	36	10		A1,A7,B2,C3,C5,C7,C8,D3,D8
CEE 3322 Estimating & Costing	30	6	-	36	10		A1,A8,B2,B3,B6,C4,C6,C8,D2, D3,D4,D5, <b>D7,D8</b>
CEE 3323 Foundation Engineering	30	-	6	36	10		A1,A6,A7,B2,B6,C1,C3,C6,C7, C8, D3,D4, <b>D7,D8</b>
CEE 3324 Reinforced Concrete Design & Project II	30	-	6	36	10		A1,A2,B2,B6,C1,C3,C6,C7,C8, D3,D4, <b>D7,D8</b>
CEE 3325 Transportation	24	6	6	36	10		A1,A4,B2,B6,C1,C3,C6,C7,C8,

Engineering I							D3,D4
CEE 3330 Industrial Attachment (10 weeks)	-	-	-	-	<b>20#</b>		B4,B5,B6,C1,C3,C4,C6,C7,C8, D2, <b>D3,D4,D5,D6,D7,D8</b>
<b>Total L4 S2</b>	<b>162</b>	<b>24</b>	<b>30</b>	<b>216</b>	<b>80</b>		
<b>Hours/week</b>				<b>18</b>			
<b>Total Level 3&amp;4</b>				<b>456</b>	<b>140</b>		
ESD 3411 Entrepreneurship Development	18	6	-	24	5	<b>5 / 1</b>	A8,A9,B4,B5,C1,D1, <b>D3,D4,D8</b>
WEE 3313 Water Supply and Distribution	30	-	6	36	10		A1,A3,B6,C4,C7,C8,D3,D8
CEE 3411 Introduction to Bridge Engineering	30	6	-	36	10		A1,A2,B2,B6,C1,C3,C6,C7,C8, D3,D4, <b>D7,D8</b>
CEE 3412 Engineering Ethics & Professional Conduct	18	6	-	24	5		A8,A9,B4,B5,C1, <b>C5,D1,D3,D4,D8</b>
CEE 3413 Transportation Engineering II	30	-	6	36	10		A1,A4,B2,B6, <b>C1,C3,C6,C7,C8,D3,D4, D7,D8</b>
CEE 3410 Research Project -I	12	-	60	72 <sup>+</sup>	20		<b>A8,A9,B1,B2,B3,B4,B5,C1,C2,C3,C5,C6,C7,C8,D1,D2,D3,D4,D5, D6, D7,D8</b>
<b>Total L5 S1</b>	<b>138</b>	<b>18</b>	<b>72</b>	<b>228</b>	<b>60</b>		
<b>Hours/week</b>				<b>19</b>			
CEE 3421 Construction Management	30	6	-	36	10	<b>5 / 2</b>	A1,A8,B2,B3,B6,C4,C6,C8,D2, D3,D4,D5, <b>D7,D8</b>
CEE 3422 Design of Steel Structures	30	6	-	36	10		A1,A2,B2,B6,C1,C3,C6,C7,C8, D3,D4, <b>D7,D8</b>
CEE 3423 Introduction to GIS & RS	24	-	12	36	10		A1,A5,B2,B6,C6,C7,C8,D2, D3
FIN 3420 Economics & Finance for Engineers	30	6	-	36	10		A8,A9,B4,B5,C1, <b>C5,D1,D3,D4,D8</b>
CEE 3420 Research Project-II	-	-	72	72 <sup>+</sup>	20		<b>A8,A9,B1,B2,B3,B4,B5,C1,C2,C3,C5,C6,C7,C8,D1,D2,D3,D4,D5, D6, D7,D8</b>
<b>Total L5 S2</b>	<b>114</b>	<b>18</b>	<b>84</b>	<b>216</b>	<b>60</b>		
<b>Hours/week</b>				<b>18</b>			
<b>Total Level 5</b>				<b>444</b>	<b>120</b>		
<b>Total Credit Hours</b>					<b>500</b>		

**Note:**

**Programme outcomes are to be shown in bold.** Most outcomes will be achieved, finally, at Level 5, but some may be achieved earlier in the programme.

+ Nominal hours for Level 5 project

A mapping of Modules and Learning Outcomes is given in a separate sheet

# From Academic Year 2011-2012, (from 2009 batch) credits for Industrial Attachment are credited as 20 and credit hours at L5 is 140 as per the approval from KIST Board and was informed thru email by VRA on 15<sup>th</sup> Dec 2011. This programme will be conducted at the end of Level 4(Yr3SII) and it will be credited in Level 5, Yr4SI.

## 6. LEARNING AND TEACHING STRATEGY

Transferable skills are developed through the learning and teaching programme.

The basic strategy is to encourage self learning by the student (Learning Objectives, LO D3). This will be achieved by a course in learning skills in the students' first semester, and by ensuring that the contact hours are on average throughout the programme no more than half the notional student learning effort hours of 40 per week (1200 hours over a 30 week year), that is an average of 20 hours per week. In the earlier years it will be a little higher than the average, reducing to the later years to below the average. Thus by the time the student leaves, he/she will be able engage in life long learning (LO D5). In addition the student will be encouraged to make use of the e-learning environment as it becomes available (also LO D6).

The specific methods include:

- **Lectures**, supported by
  - Problem sheets for the student to solve in their own time.
  - Tutorial classes in level 1 to 3, the number per lecture reducing through the levels.
  - Staff office hours in Levels 3 to 5, whereby the staff make themselves available at specific times in their office for students to come and ask questions.  
(LO's A1 to A7, B4, B5, B6, D3, D5, D7)
- **Laboratory Classes.** Their role is to
  - Illustrate lecture material (LO's A1 to A7, B5, B6)
  - Provide skill in using laboratory equipment and materials and recording data (LO's C6, C7, C8)
  - Analyse data, draw implications, and report the results (LO's A1 to A7, B5, B6, C1, C2, D4)
- **Project Work and Exercises.** These include
  - Essays (LO's A8 to A9, B4, B5, D3).
  - Small projects or exercises (LO's A1 to A7, B1 to B6, C6, D6,D7, D8)
  - Design projects which are done in teams and provide an integrating thread for the mathematical and engineering knowledge. These are held in Levels 3 and 4 with the Level 4 design project being of a realistic Civil Engineering problem. (LO's A2to A7, B1 to B6, C1to C8, D1to D8)
  - Individual Research Project at Level 5 (LO's A8,A9,B1,B2,B3,B4,B5,C1,C2, C3,C5,C6,C7,C8,D1,D2,D3,D4, D5, D6, D7,D8)

- **Industrial Visits and Placements**

(LO's B4, B5, B6, C1, C3, C4, C6, C7, C8, D2, D3, D4, D5, D6, D7, D8)

## 7. ASSESSMENT STRATEGY

All assessment will be carried out with reference to marking criteria based on the KIST generic marking criteria. Specific marking criteria will be used for the different assessment types and these will use a matrix of elements and marking criteria where appropriate, such as project work. These marking criteria will be given to students so that they know what the examiners are expecting for a given piece of assessed work.

The maintenance of standards will be achieved by second marking and/or moderation of examinations, continuous assessed work and reports, depending on their nature. This will minimise mistakes or bias by any single examiner. Where possible, examinations and other assessments, level progressions and degree classification will be done anonymously to demonstrate impartiality to all students. In addition the overall assessment process will be subject to external examiner scrutiny who will provide benchmarking to international standards.

The different teaching methods are assessed as follows:

- **Lecture Modules** (those that are delivered mainly by lectures) will be examined primarily by end of semester unseen examinations, but will include an element (up to 40%) of continuous assessment. The latter may be taken from worked problem sheets, laboratory reports, essays or small project exercises. However most of the problem sheets supporting lectures will be formative as also may be some laboratory reports and essays (particularly at the lower levels). Some of the lecture courses may be examined primarily or completely by assignments, where the nature of the course is unsuitable for assessment by examination, e.g. study skills or computer programming. This strategy will contribute to ensuring the achievement of LO's A1 to A7, B4, B5, B6, D3, D5, D7
- **Design Projects.** These will be examined by a group written report and group presentation. The report and presentation will be constructed so that individual contributions both to the technical work and team working will be identifiable. The assessment will contribute to LO's A2 to A7, B1 to B6, C1 to C8, D1 to D8
- **Individual Research Project.** This will be assessed by a written report, presentation and oral examination, thus contributing to the LO's A8, A9, B1, B2, B3, B4, B5, C1, C2, C3, C5, C6, C7, C8, D1, D2, D3, D4, D5, D6, D7, D8
- **Survey Lab report:** This will be assessed by students hands on performance in the field by applying the knowledge gained during the course of study and thus contributing the Los: A1, A5, B3, B6, C1, C4, C6, C7, C8, D3, D4, **D7, D8**
- **Industrial Visits and Placements.** These will not normally be assessed summative (they will be formative), but attendance and in some cases a

satisfactory report may be required as a condition of progression, LO's B4, B5, B6,C2 to C8, D1 to D8.

The individual module contributions to the Learning Objectives will be specified in each module specification, so that the higher level skills are demonstrated at the higher levels of the degree programme. A curriculum map for Modules and Learning Outcomes also shows the specification.

To guard against cheating, all end-of-semester examinations will be held under strict examination conditions in accordance with University requirements. It is impossible to completely prevent students collaborating on continuously assessed work, and indeed students helping each other is one of the most effective methods of student learning. However students will be made aware at the start of any module to what extent collaboration is desirable, and checks will be made by the relevant staff to ensure that direct copying is minimised. Similarly students will be made aware of what constitutes plagiarism, particularly in respect of essays and the Design Projects (Level 1, 2, 4) and Level 5 Research Project. Presentations and oral examination will help to make plagiarism apparent, but where appropriate, examiners will use other techniques such as internet searching and text comparators.

## **8. STUDENT PROFILE**

Civil Engineering is concerned with the application of science, students must have an aptitude for Mathematics and Science and also an interest in creative applications to the design and analysis of components of structures, drawings and managing the construction industry.

## **9. SPECIFIC ADMISSION CRITERIA**

Candidates for admission to the Civil Engineering Programme are expected to satisfy the general admission requirement of the Institute as specified in the academic regulations.

Students will be selected on the basis of their performance in the Rwandan National Examination (A Level) with the option of Science especially **Mathematics-Physics-Chemistry** or its equivalent for candidates coming outside Rwanda

## **10. STRATEGY FOR STUDENT SUPPORT**

The department has plans to allocate Personal tutors to a group of students. These students will be allocated to a member of staff as a personal tutor. The students will meet with their tutor on a regular basis during Level 1 and Level 2, in a tutor group or as an individual, as appropriate. This will enable the tutor to discover how the student is progressing, and to offer both academic and pastoral support should that be needed. The tutor will discuss with the student the results of any continuous assessed work during the semester, and will review the end of semester examination results with the

student at the start of the following semester. In Levels 3 and 4, the meetings will take place less frequently, but at least twice a semester, as the student becomes more mature and independent in the learning process. The supervisor will meet weekly with the student to provide support and guidance through the project work.

Specific subject support will be available to students through the lecture tutorial support and the staff office hours as specified in the Learning and Teaching Strategy. There will be additional pastoral support through the University student support services, which the students will be encouraged to use if necessary.

Provision for students with disabilities will be catered for on an individual basis and with advice from the University student support services. One of the female members of staff will be appointed as the gender discrimination officer for the department (or faculty), and she will address any problems experienced by female students in the area of gender bias, discrimination or harassment

## **11. PROGRAMME-SPECIFIC NEED FOR RESOURCES AND UNUSUAL DEMANDS ON UNIVERSITY RESOURCES**

At present, the Members of Staff in the Department are sufficient in quantity but in the rank. There is no shortage of Lecturer except the of Highway & Transportation Engineering and Engineering Economics and Finance for Engineers. These courses will be managed by some visiting/part time lecturers from other Institutions. The department needs a full time Professor to guide the members of staff to their PG studies or PhD studies.

In order to allow at least one laboratory experiment (a minimum) for each lecture course, an urgent refurbishment of the laboratory is required. Nearly all of the present equipment is not working and needs to be repaired, or in some cases replaced. In addition new equipment and increased laboratory space to house them is required. The requirements in laboratories terms of chemicals, reagents, materials, etc

With the growing importance of computers in engineering, a new dedicated laboratory of computers is required to run the Computer Aided Design and Drawing and a full pledged Drawing Hall with all accessories.

Computers for staff are required to allow lecturers for each year to use one. Ideally to aid the running of the department and the production of modern teaching materials, a photocopier is also required.

To improve the efficiency of teaching and research work, the department is lack of following grades of staff:

- Tutorial Assistant: available in all areas of specialisation
- Lab Technician : 2– these are required not only for running the laboratories, but also for providing support for the significantly increased role of final year projects
- Chief Laboratory Engineer:1 An engineering graduate who will be the overall in charge of all the labs and to take care of machineries and materials
- Secretary or administrator: 1

## **12. STRATEGIES FOR CONTINUOUS ENHANCEMENT AND FUTURE DEVELOPMENT**

At the end of each semester there will be a Module Review meeting of all staff in the department to consider the progress of each module. The module leader will gather information from all staff involved in teaching the module and present these to the meeting. This will be considered along with student feedback on the module and the results of the module assessments. At the end of the year any views of external examiners will also be considered. Any module which is not going well will be subject to specific measures for improvement. This may involve changes to the content and timing of the module, the methods used for learning and teaching, the assessment methods and standards, and the physical resources required for the module. The effectiveness of these changes will be considered at the Module Review meeting after the next time the module is given.

At the end of the year a Programme Review meeting will consider the curriculum as a whole, regarding its quality and relevance to the needs of the profession and in the light of changes in technology. An Industrial Advisory panel, consisting of a range of professionals and employers in the Civil Engineering profession, together with some of the senior staff in the department will consider the curriculum and offer suggestions and advice regarding the qualities and skills required of graduating students entering the profession. The Advisory panel will have an input into the Programme Review meeting and will also be asked to advice on any changes being considered to the curriculum.

## **13. STAFF DEVELOPMENT PRIORITIES**

The most urgent priority is the equipping of staff to teach in a radically different manner than previously. The course material will be delivered with up to 35% less contact hours; they should teach so that students are encouraged to undertake self learning, and staff expectations of the students should be raised in terms of the initiative, ideas and confidence expected.

A second important priority will be the development of participation by every staff member in design projects, with at least one staff member with specialist design

engineering expertise to lead the new vitally important role of design in raising the standard of the course to an international level.

**14. ANY OTHER ESSENTIAL INFORMATION**

**NOT APPLICABLE**

## PROVISIONAL APPROVAL

### Members of Approval Panel

Role/location		Date
1 Chair (VRAC)	Signature	
	Name	
2	Signature	
	Name	
3	Signature	
	Name	
4	Signature	
	Name	
5	Signature	
	Name	
6	Signature	
	Name	
7	Signature	
	Name	
8	Signature	
	Name	

### Seen and noted

Library	Signature	
	Print Name	
ICT	Signature	
	Print Name	
Quality Office	Signature	
	Print Name	
VRAF	Signature	
	Print Name	