ENGINEERING COUNCIL OF SOUTH AFRICA *Standards and Procedures System*			ECSA
Forms for Use in Accreditation Visit Documentation			
Status: Approved by Council			
Document : E-13-P	**Rev-1**	**7 February 2008**	

1. Purpose

The subsequent pages contain tables that are required in preparing the documentation for an accreditation visit to a provider's engineering programme.

2. Definitions

Definitions of terms, key statistics and indices are given in document E-01-P and at various places in this document.

3. The Tables

The following tables are required in the provider's documentation. The tables are available separately as Word documents or Excel Spreadsheets

Table 1: Programme structure and rules of combination
Table 2: Course/module details
Table 3: Analysis of programme content.
Table 4: Evidence of Assessment of Outcomes.
Table 5: Course/module outcome development and assessment roles
Table 6: Internal and External moderator details.
Table 7: Student intake, enrolment, graduation and throughput.
Table 8: Analysis of intake.
Table 9: Academic Staff Summary **.**
Table 10: Student, staff and resource indices.
Table 11: Financial Resources and related statistics.

All ***Instructions*** in the various templates are shown italicized and must be deleted in the actual submission. For example:

Instruction: *this is an instruction to the person completing the tables.*

Table 1: Programme structure and rules of combination

Instruction: *For each semester, complete a block as follows, showing compulsory courses, elective courses if applicable.*

Semester 1:		
Compulsory Courses		
Code	Course/module name	Credits
Elective courses: x to be completed		
Semester 2:		
Compulsory Courses		
Code	Course/module name	Credits
Elective courses: x to be completed		
• • • •		
Semester 8:		
Compulsory Courses		
Code	Course/module name	Credits
Elective courses: x to be completed		

Table 2: Course/module details

Instructions: *complete one page per year of study. Laboratories are conducted on campus and may aid learning of principles or simulate practical conditions. Practicals are conducted off campus in industrial type or scale situations.*

YEAR OF STUDY _____												
Sem-ester(s)	Course		Lecturer(s)	Total Contact Hours					Assessment Components Tests/Projects/Exams/….		Weight/ Credit	Class Size
	Code	Name		Lect	Tut	Lab	Prac	Other	Item	%		
									Component 1			
									Component 2			
									…..			
									Component n			
Totals for the year of study (Do not double count electives)												

Table 3: Analysis of programme content

Instructions: *This calculation is available as an Excel worksheet. The worksheet requires the data and performs the calculations shown below.*

- *Insert each course/module and its credit value into columns 1-3. Call the course credit CCV.expressed in SAQA credits The worksheet calculates the credit values according to the relevant standards.*
- *Total the credit in column 3 to give the sum of the credits for the degree SCVwith subtotals per year or semester.*
- *Insert elective courses but do not double count the credit contribution when totalling columns 3-9. The units of columns 3-9 are SAQA credits.*
- *Sub-allocate the credit to to one or more of the knowledge areas in cloumns 4-9 as follows. An intra course weight (ICW) is allocated to each knowledge area, for example a particular course has weighting 65% for Engineering Science and 35% for Engineering Design.*
- *The contribution of the course to a Knowledge Area is ICW*CCV.*
- *Total columns 4-9 for the program.*
- *The last column is a percentage 100 CCV/SCV*

Course		Credit	Contribution to total credit for programme						
Code	Name	CCV	Mathematics	Basic Sciences	Engineering Sciences	Design and Synthesis	Computing And IT	Complement ary studies	Contribution of Course
Total		SCV							100 %

Table 4.1: Presentation of Evidence of Assessment of Outcomes (BEng-type Programmes)
Instructions: *See section 6.6.1 of E-12-P*

ECSA Exit Level Outcome	Where is outcome assessed	How is Exit level Outcome assessed?	What is satisfactory performance?
1: Problem solving ***Learning outcome:*** Demonstrate competence to identify, assess, formulate and solve *convergent* and *divergent* engineering problems creatively and innovatively.			
2: Application of scientific and engineering knowledge ***Learning outcome:*** Demonstrate competence to apply knowledge of mathematics, basic science and engineering sciences from first principles to solve engineering problems.			
3: Engineering Design ***Learning outcome:*** Demonstrate competence to perform creative, *procedural* and *non-procedural* design and synthesis of components, systems, engineering works, products or processes.			
4: Investigations, experiments and data analysis ***Learning outcome:*** Demonstrate competence to design and conduct investigations and experiments.			
5: Engineering methods, skills and tools, including Information Technology ***Learning outcome:*** Demonstrate competence to use appropriate engineering methods, *skills* and tools, including those based on information			

technology.			
6: Professional and technical communication ***Learning outcome:*** Demonstrate competence to communicate effectively, both orally and in writing, with engineering audiences and the community at large.			
7: Impact of Engineering activity ***Learning outcome:*** Demonstrate *critical awareness* of the impact of engineering activity on the social, industrial and physical environment.			
8: Individual, team and multidisciplinary working ***Learning outcome:*** Demonstrate competence to work effectively as an individual, in teams and in multidisciplinary environments.			
9: Independent learning ability ***Learning outcome:*** Demonstrate competence to engage in independent learning through well developed learning skills.			
10: Engineering Professionalism ***Learning outcome:*** Demonstrate *critical awareness* of the need to act professionally and ethically and to exercise judgment and take responsibility within own limits of competence.			

Table 4.2: Presentation of Evidence of Assessment of Outcomes (BTech-type Programmes)
Instructions: *See section 6.6.1 of E-12-P*

ECSA Exit Level Outcome	Where is outcome assessed	How is Exit level Outcome assessed?	What is satisfactory performance?
1: Problem solving ***Learning outcome:*** Apply engineering principles to systematically diagnose and solve broadly defined engineering problems.			
2: Application of scientific and engineering knowledge ***Learning outcome:*** Demonstrate the application of mathematical, science and engineering knowledge in an engineering environment.			
3: Engineering Design ***Learning outcome:*** Perform procedural and non-procedural design of broadly defined components, systems, works, products or processes to meet desired needs within applicable standards, codes of practice and legislation.			
4: Communication ***Learning outcome:*** Communicate technical, supervisory and general management information effectively, both orally and in writing, using appropriate language and terminology, structure, style and graphical support.			
5: Engineering Management ***Learning outcome:*** Apply engineering management principles and concepts to engineering activities.			
6: Project Management ***Learning outcome:*** Identify, analyse, conduct and manage a project.			

7: Application of Complementary Knowledge ***Learning outcome:*** Demonstrate a *critical awareness* of the impact of engineering activity on the social, industrial and physical environment, and of the need to act professionally within own limits of competence.			

Table 4.3: Presentation of Evidence of Assessment of Outcomes (ND-type Programmes)
Instructions: *See section 6.6.1 of E-12-P*

ECSA Exit Level Outcome	Where is outcome assessed	How is Exit level Outcome assessed?	What is satisfactory performance?
1: Problem solving ***Learning outcome:*** Apply engineering principles to systematically diagnose and solve well-defined engineering problems.			
2: Application of scientific and engineering knowledge ***Learning outcome:*** Demonstrate the application of mathematical, science and engineering knowledge in an engineering environment.			
3: Engineering Design ***Learning outcome:*** Perform procedural design of well-defined components, systems, works, products or processes to meet desired needs within applicable standards, codes of practice and legislation.			
4: Communication ***Learning outcome:*** Communicate technical, supervisory and general management information effectively, both orally and in writing, using appropriate language and terminology, structure, style and graphical support.			
5: Engineering Management ***Learning outcome:*** Apply self-management principles and concepts relating to the development of projects and/or operations within an engineering environment.			
6: Application of Complementary Knowledge ***Learning outcome:*** Demonstrate a *critical awareness* of the impact of engineering activity			

on the social, industrial and physical environment, and of the need to act professionally within own limits of competence.			

Table 5: Course/module outcome development and assessment roles

Instruction: *This table is designed to be completed in 8pt type and enlarged for A3 paper.Remove colums for fewer outcomes of BTech and ND programmes.*

Code	Course/module Name	Role of course/module in developing student toward Exit Level Outcomes									
		EL0 1	ELO 2	ELO 3	ELO 4	ELO 5	ELO 6	ELO 7	ELO 8	ELO 9	ELO 10

Table 6: Internal and external moderator details.

Course/Module		Internal Examiner(s) Name(s)	External Examiner/Moderator	
Code	**Name**		**Name**	**Affiliation**

Table 7.1: Intake, enrolment, graduation and throughput statistics (BEng-type programmes)
Instruction: Insert D1, D2, D3, N1, N2, N3, N4 and various graduate numbers as headcounts

		Year							
		-7	-6	-5	-4	-3	-2	-1	Curr
Direct intake-Year 1	D1								
Enrolment -Year 1	N1								
Direct intake-Year 2	D2								
Enrolment -Year 2	N2								
Direct intake-Year 3	D3								
Enrolment -Year 3	N3								
Enrolment -Year 4	N4								
Graduates (Total)	G(total)								
Graduates (Min time)	G(min)								
Graduates (Min +1 year)	G(min+1)								
Graduates (Min +2 year)	G(min+2)								
Throughput	TP								
Effectivity Index	EI								

Table 7.2: Intake, enrolment, graduation and throughput statistics (BTech-type programmes)

		Semester									
		-9	-8	-7	-6	-5	-4	-3	-2	-1	Curr
Direct intake-Semester 1	D1										
Enrolment -Semester 1	N1										
Direct intake-Semester 2	D2										
Enrolment -Semester 2	N2										
Graduates (Total)	G(total)										
Graduates (Min time)	G(min)										
Graduates (Min +1 sem)	G(min+1)										
Graduates (Min +2 sem)	G(min+2)										
Throughput	TP										
Effectivity Index	EI										

Table 7.3: Intake, enrolment, graduation and throughput statistics (ND-type programmes)

		Semester									
		-9	-8	-7	-6	-5	-4	-3	-2	-1	Curr
Direct intake-Semester 1	D1										
Enrolment -Semester 1	N1										
Direct intake-Semester 2	D2										
Enrolment -Semester 2	N2										
Direct intake-Semester 3	D3										
Enrolment -Semester 3	N3										
Direct intake-Semester 4	D4										
Enrolment -Semester 4	N4										
Enrolment -Semester 5	N5										
Enrolment -Semester 6	N6										
Graduates (Total)	G(total)										
Graduates (Min time)	G(min)										
Graduates (Min +1 sem)	G(min+1)										
Graduates (Min +2 sem)	G(min+2)										
Throughput	TP										
Effectivity Index	EI										

Instruction: *Throughput will be calculated automatically in the spreadsheet versions of these tables as the ratio of an output term to an input term. The basis for the calculation is as follows:*

- *The output term for a given period (year or semester) is G(min)+G(min+1)+G(min+2).*
- *The input is a weighted sum of the direct intake (non-repeat) students at various stages based on a notional throughput model.*

Table 8: Analysis of student intake
Instruction: *This table is to be prepared for the latest full year intake to the programme. For ND and BTech-type programmes aggregate figures for two semesters within year.*

Please add a definition of the admission rating formula used for entry

Category	Admission Rating	Number Admitted
Recent Senior Certificates		
FET College students		
Comparable programme transfers		
Different programme transfers		
Mature students		
Foreign students		
Other categories		
Total first year Intake (D1)		
Midstream Intake (D2)		
(D3)		
(D4)		

Definition of Admission Rating:

Table 9: Academic Staff Summary

Name & Initials	Title	Position	F/ P/ S	Speciality	Qualifications		Experience in years		Publications**	
					Academic	Professional*	Academic	Industrial	Journal	Conference

**** Publications over last five years. * Include professional registration(s)**
F - Full-time; P - Part-time; S - Sabbatical

Table 10: Key Staff Indicators

Instruction: *Extract the statistics from table 5 for departmental staff (not service departments) and calculate the indices shown*

Quantity	Definition	Value
All programmes		
Senior Lecturer Equivalent Staff to Student Ratio	SLE SSR=FTE/SLE	
No of Staff with Master's Degrees	ME	
No of Staff with Bachelors Degrees	BE	
No of staff who are Registered with ECSA	RE	
No of Staff qualified "one higher" than programme taught	QE	
Masters Equivalent Index	MI=ME/FTE	
Qualified "One higher" Index	QI=QE/FTE	
Professional Registration Index	PI =RE/FTE	
No of Technical Staff	TE	
No of Administrative Staff	AE	
No of Other staff	OE	
Academic Experience years	Sum / SLE	
Professional Experience years	Sum / SLE	
BEng-type Programmes Only*		
No of Staff with Ph.D.'s	DE	
Doctoral Equivalent Index	DI=DE/FTE	
Journal Papers Index	JI =Sum/SLE	
Conference Papers	CI=Sum/SLE	
All papers above	PI=Sum/SLE	

** Optional for other types of programmes*

Instruction: Sum *is the total of the appropriate column in table 9. Senior Lecturer Equivalents are calculated by applying the following weights to academic staff at the different levels according to:*

$$SLE = \sum_r W_r \times F_r$$

Where: W_r: Weighting of academic staff member *r*
(Professor: W_r=1.25
Associate Professor W_r=1.1
Senior Lecturer W_r=1.0
Lecturer W_r=0,8
Junior Lecturer W_r=0,5)
F_r: Fraction of time the staff member is employed

Table 11: Financial Resources
Note: Items may vary depending on the provider's's resource allocation practice.

Item		Years up to present				
Staffing/Salaries Capital Equipment Operating/Running/ Maintenance expenses Computing and networking Library books Library journals Travel Research Other	SE CE OE					
Total						
Indices	SE/FTE					
	CE/FTE					
	OE/FTE					

3 Revision History

Version	Date	Revision authorised by	Nature of revision
Rev-0 C-A	26 Aug 2006		Adapted from PE-76 rev 3; Tables rearranged, new tables introduced,
Rev 0 C-B	19 Jan 2007		Tables further redesigned, numbering harmonised with E-12-P.
Draft A	19 May 2007	Working group	Editorial, Instructions added to table 10
Revision 1	7 Feb 2008	Council	