

ENGINEERING COUNCIL OF SOUTH AFRICA

ENGINEERING TECHNOLOGY PROGRAMMES

**DOCUMENT FOR COMPLETION BY THE ACCREDITATION TEAM
Section 5**

**DOCUMENTATION FOR USE DURING ACCREDITATION VISIT
*REPORT for National Diploma: Engineering***

EDUCATIONAL INSTITUTION		
SCHOOL/DEPARTMENT		
DISCIPLINE		
PROGRAMME		
PERSON RESPONSIBLE FOR PROGRAMME		
TYPE OF VISIT		
DATE OF VISIT		
DATE OF PREVIOUS VISIT		
OUTCOME OF PREVIOUS VISIT		
NUMBER OF PAGES OF THIS REPORT	Pages (excluding front page)	
VISIT TEAM	NAME	SIGNATURE
Leader	.....	.....
Member	.....	.....
Member	.....	.....
Member	.....	.....
Member	.....	.....
Member	.....	.....
Observer	.....	.....

The open lines between the questions are for comments*

SECTION 5: REPORT

REF. (SEC. 2)	QUESTION	DOCUMENTATION (3.1.1)		INTERVIEWS (3.1.2)		INSPECTIONS (3.1.3)	
		YES	NO	YES	NO	YES	NO
		ND	ND	ND	ND	ND	ND

2.2	PURPOSE STATEMENT						
2.2	Is the purpose of the programme clearly stated?						
2.2	Is the description/specification of the programme clearly stated?						
2.2	Does the purpose of the qualification describe the work of an Candidate Engineering Professional?						

2.3 DESCRIPTION OF CRITERIA OF QUALIFICATION

2.3.1	Does the description of the criteria/specification/purpose of the qualification meet the ECSA Criteria for the relevant qualification -						
i	General engineering – identification and analysis of problems, problem solving.						
ii	Management and communication – in the working environment of self and others.						
iii	Engineering specific to discipline and the target industry.						
iv	Application of engineering practice and ethical work practice – including evaluation of ability, competency and work of oneself and of others.						

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		YES	NO	YES	NO	YES	NO
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2.3.2 i	A basic structure to meet the core requirements/underpinning knowledge of mathematics, science and technology as applied in engineering. This includes but is not limited to:						
	<ul style="list-style-type: none"> • Use and interpretation of mathematical formulas used in engineering calculations 						
	<ul style="list-style-type: none"> • Performing statistical analyses using standard methods and evaluation 						
	<ul style="list-style-type: none"> • Interpretation and evaluation of results 						
	<ul style="list-style-type: none"> • Using basic scientific principles to reason concerning engineering 						
	<ul style="list-style-type: none"> • Components, systems and procedures 						
	<ul style="list-style-type: none"> • Engineering science applicable to the appropriate sub-discipline 						
ii	Knowledge that address the target industry's specific needs.						
iii	Formalised education through a co-operative education system in which full integration of experiential learning in a real life industrial environment compliments the academic classroom and integrated laboratory work.						

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		ND	ND	ND	ND	ND	ND

iv	Development of manipulative and functional skill.						
v	Integration of technological knowledge and skills that develop 'thinking skills' to apply the learning achieve through the programme.						
	Development of the culture of self-learning and the continuing acquisition of knowledge and skills that are necessary to perform in a developing work environment.						
vii	Solving real/industrial problems through the application of current known technology.						

2.4 CRITICAL CROSS- FIELD OUTCOMES OF NATIONAL DIPLOMA: ENGINEERING

2.4	Does the specification comply with the content specified by ECSA with respect to						
i	Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made.						
ii	Work effectively with others as a member of a team, group, organisation, community						
iii	Organise and manage oneself and one's activities responsibly and effectively						
iv	Collect, analyse, organise and critically evaluate information						

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v	Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written persuasion.						
vi	Use science and technology effectively and critically, showing responsibility towards the environment and health of others.						
vii	Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.						
viii	In order to contribute to the full personal development of each learner and the social and economic development of the society at large, it must be the intention underlying any programme of learning to make an individual aware of the importance of:						
	o Reflecting on and exploring a variety of strategies to learn more effectively						
	o Participating as responsible citizens in the life of local, national and global communities						
	o Being culturally and aesthetically sensitive across a range of social contexts						
	o Exploring education and career opportunities, and						
	o Developing entrepreneurial opportunities						

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		YES	NO	YES	NO	YES	NO
		ND	ND	ND	ND	ND	ND

2.5 LEARNING STRATEGY

2.5	Does the learning structure specified comply with the criteria specified by ECSA for learning strategy with respect to?						
	Academic Education						
i	Address components of the qualification that are best learnt using this method of learning.						
ii	Addressing identifiable components of the qualification as described in the criteria including the acquisition of knowledge and skills and the ability to identify problems and to apply knowledge in solving them.						
iii	Must have appropriate entrance requirements/prerequisites.						
iv	Must have definite exit criteria/measurable competencies.						
v	Problem solving, design and synthesis must follow a logical method and become progressively more complex.						
vi	Resources must be adequate to complete the learning specified. The resources include but are not limited to:						
	<ul style="list-style-type: none"> • Lecturers with adequate knowledge, skill and appropriate experience 						
	<ul style="list-style-type: none"> • Tutors with adequate knowledge, skill and appropriate experience 						

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		ND	ND	ND	ND	ND	ND

	<ul style="list-style-type: none"> • Lecture facilities and tutorial rooms, resource centers 						
vii	Provision for maintaining and developing the resources must be adequate. In the case of staff issues, these should include but are not limited to:						
	<ul style="list-style-type: none"> • Ensuring adequate knowledge 						
	<ul style="list-style-type: none"> • Ensuring adequate teaching skills 						
	<ul style="list-style-type: none"> • Ensuring that industrial exposure is current and appropriate for the content taught 						
	<ul style="list-style-type: none"> • Appropriate work load 						
	<ul style="list-style-type: none"> • Adequate staff retention and variation 						

- Continuing professional development

viii	Registration with ECSA is preferable, to determine the level of competence.						

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		ND	ND	ND	ND	ND	ND

ix	Must have effective/adequate and appropriate assessment/evaluation method (described and applied).						
x	Credit/assessment must be appropriate to the type of learning and the effort required/complexity of the learning. (It is expected that credit earned for tests, tutorials and small projects is proportional to the effort expended and competency/learning achieved.)						
.xi	The results achieved should indicate a 'typical' rate of success achieved by the learners.						
xii	Student to lecturer ratio should be such that the outcomes are not compromised.						
2.5.3	Laboratory Work						
i	Develop manipulative skills needed in the workplace using equipment and instruments currently used in the discipline.						

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		ND	ND	ND	ND	ND	ND

ii	Acquire knowledge that can be effectively learnt through hands on activities and to consolidate/review learning acquired through academic studies. Where academic and laboratory studies address the same content, it is expected that the content is addressed concurrently in both using both methods.						
iii	Assessment and credit awarded must be appropriate to the type of learning and the effort required/complexity of the learning.						
iv	The combined work of individuals may lead to a group result but the work of each individual must be clearly identified and assessed independently.						
v	Adequate resources are available and are used to execute the work specified according to acceptable and safe practice – including but not limited to time, equipment, and supervision.						
vi	Provision for maintaining and developing the resources must be adequate. This includes but is not limited to:						
	o Ensuring adequate quantities and qualities of appropriate equipment is available						
	o Ensuring adequate number of technical support staff, teaching staff and supervisory staff and that these staff are competent						

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		ND	ND	ND	ND	ND	ND

	<ul style="list-style-type: none"> ○ Appropriate work load for the staff 						
vii	Adequate staff retention and variation.						
viii	Assessment and credit awarded must be appropriate to the type of learning and the effort required/complexity of the learning.						
2.5.4	Practical Assignments/Project Work						
i	Appropriate project work is desirable in all subjects. It is essential in engineering components of each programme.						
ii	Students must source and evaluate information using libraries and other resources and/or establish information through experimentation. This is combined with making deductions and forming conclusions and reporting results.						
iii	Projects must be more complex at higher levels in the programme, to ensure that many of the skills and knowledge acquired during the earlier learning activities. This includes the application of mathematics, science, communication and computing in problem solving, design and synthesis in progressively more complex exercises.						
iv	Adequate resources are available and are used by the learners for the projects. These include supervision and tuition and guidance, laboratories, libraries and other media sources.						

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		ND	ND	ND	ND	ND	ND

v	Safe and ethical practice is applied during the execution of projects and their evaluation.						
vi	Assessment and credit awarded must be appropriate to the type of learning and the effort required/complexity of the learning.						
vii	The work of each student must be clearly identified and assessed independently.						
2.5.5	Does the computer component achieve/address the following -						
i	Competency of the students in the use of common computer applications such as word processing, drawing and using spread sheets.						

ii	Use of these applications in further studies.						
iii	Learning of and application of appropriate software in discipline specific activities.						
iv	Adequate access to the equipment that is required for the work specified.						
v	Provision for maintaining and developing the resources.						
vi	Tuition and software support that ensure that the specified learning can take place.						
vii	Assessment and credit awarded must be appropriate to the type of learning and the effort required/complexity of the learning.						

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		ND	ND	ND	ND	ND	ND

2.5.6	Does Experiential Learning comply with the following -				
i	Execution in accordance with appropriate procedures/guidelines. (These must indicate the learning outcomes required.)				
ii	Preparation for professional responsibilities must be included.				
iii	Assessment of experiential training				
	○ Assessment and credit awarded must be appropriate to the type of learning and the effort required/complexity of the learning.				
	○ In this regard ECSA expects the mentor evaluator to be a registered person.				
	○ If a mentor/evaluator is not registered with ECSA proof of competency to carry out this activity must be available during the assessment inspections.				
iv	Experiential training must be of industrial character. To achieve this proof of co-operation with industry is required. Learning in a training 'learning' laboratory/environment is not acceptable.				

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		ND	ND	ND	ND	ND	ND

v	Experiential training should include but is not limited to work that develops the application and use of the knowledge and skills that have been learnt before the experiential training takes place and that student experience the discipline of working for a relevant industrial organisation.						
vi	Adequate experiential learning in the National Diploma: Engineering programme consisting of:						
	<ul style="list-style-type: none"> • A preparatory stage - giving the learner an industrial background, which will enable him to relate his/her academic studies to the actual work situation. It must also ensure that the learner becomes familiar with the culture, work ethic, obligations and behaviour expected in the real working environment 						
	<ul style="list-style-type: none"> • A basic stage - developing his/her manipulative and functional skills 						
	<ul style="list-style-type: none"> • An application/project component – this must contain the integration of the technical knowledge and skills needed to add value upon employment. 						
vii	Adequate opportunities to experiential learning must be provided.						
viii	Adequate mentors, supervisors/tutors and assessors must be provided.						
ix	Adequate training of the above staff must be provided.						

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		YES	NO	YES	NO	YES	NO
		ND	ND	ND	ND	ND	ND

2.6	Is the assessment/quality assurance specified adequate to ensure compliance with the specification with respect to:						
2.6.1	Appropriate assessment for individual components/aspects of the qualification						
i	It must be carried out according to defined procedure(s)						
ii	All the outcomes of the qualification must be assessed						
iii	The Weighting of the credits must reflect the learning involved, the complexity of the work assessed and its importance in the course						
iv	The results achieved over a number of years						
v	Assessments must be accurate measures of the competencies/knowledge and skills achieved.						
	Has the Examination process or the graduation process been compromised in any way?						

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		YES	NO	YES	NO	YES	NO
		ND	ND	ND	ND	ND	ND

2.6.2	Entrance Requirements						
	Are the entrance requirements adequate to ensure the students admitted to the program will be successful?						
	Has the Minimum Entrance requirement process been compromised in any way?						

2.7	Does the documentation show that the programme is revised regularly to address changing requirements and does this take place in a controlled manner?						
	Additional Questions						

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Deficiencies to be described using the format below

The programme is considered deficient in that:

REF.	POLICY DESCRIPTION OF DEFICIENCIES Insert the Question from Policy Section 5	DESCRIPTION OF DEFICIENCIES

Concerns to be described using the format below

The programme was found to have the following concerns:

REF.	POLICY DESCRIPTION OF CONCERNS Insert the Question from Policy Section 5	DESCRIPTION OF CONCERNS

Further comments

The following issues that are not addressed in other parts of the report, are recorded by the accreditation team:

ISSUE/COMMENT	COMMENT

****Complete the relevant section***

SECTION 5: REPORT

1. The accreditation assessment team recommends that the
- **National Diploma: Engineering:** **be PROVISIONALLY ACCREDITED** until the first group of students graduate in

NB: USE FOR ACCREDITATION UNTIL THE NEXT CYCLE

2. The accreditation assessment team recommends that the
- **National Diploma: Engineering:** **be ACCREDITED** until

NB: USE FOR ACCREDITATION FOR A LIMITED PERIOD (At the Regular visit)

3. The accreditation assessment team recommends that the
- **National Diploma: Engineering:** **be ACCREDITED** until **XX XXXXXXXXXX XXXX** subject to a Quality Improvement Plan that addresses all the deficiencies and concerns be submitted to ECSA by **XX XXXXXXXXXX XXXX** with a follow up visit before **XX XXXXXXXXXX XXXX**.

Team Leader: Member:

Visit Leader:

Date:

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