



Pulp and Paper Technology

Diploma and Advanced Diploma
Programmes

Diploma (DiPPT1): Programme Structure

Subject	Semester	NQF Level	Credits	Pre Requisite	Co Requisite
Mathematics A	1	5	12		
Chemistry A	1	5	12		
Cornerstone 101 (general module)	1	5	12		
Physics A	1	5	8		
Pulp and Paper Engineering Fundamentals A	1	5	12		
Technical Literacy	1	5	8		
Mathematics B	2	5	12	Mathematics A	
Physics B	2	5	8		
Chemistry B	2	5	12	Chemistry A	
Pulp and Paper Science 1	2	5	12	Chemistry A	
Pulp and Paper Engineering Fundamentals B	2	5	12	Mathematics A; Chemistry A; Pulp and Paper Engineering Fundamentals A	
Computer Applications	3	5	12		
Chemistry C	3	6	12	Chemistry A	
Physics C	3	6	8		
Pulp and Paper Technology A	3	6	12	Pulp and Paper Science 1	
Pulp and Paper Laboratory A	3	6	8	Pulp and Paper Science 1; Pulp and Paper Engineering Fundamentals B	Pulp and Paper Technology A
Unit Operations A	3	6	12	Pulp and Paper Engineering Fundamentals B	
Pulp and Paper Technology B	4	6	12	Pulp and Paper Science 1	
Pulp and Paper Laboratory B	4	6	8	Pulp and Paper Science 1; Pulp and Paper Engineering Fundamentals B	Pulp and Paper Technology B

Subject	Semester	NQF Level	Credits	Pre Req.	Co Req
Transfer Processes	4	6	12	Pulp and Paper Engineering Fundamentals B	
Unit Operations B	4	6	12	Pulp and Paper Engineering Fundamentals B	
Thermodynamics	4	6	12	Pulp and Paper Engineering Fundamentals B	
Pulp and paper technology C	5	6	12	Pulp and Paper Science 1	
Pulp and Paper Laboratory C	5	6	8	Pulp and Paper Science 1; Pulp and Paper Engineering Fundamentals B	Pulp and Paper Technology C
Principles of management A	5	7	8		
Process Instrumentation and Control	5	6	12	Pulp and Paper Engineering Fundamentals B	
Project Management	5	7	8		
Pulp and paper manufacturing	6	6	72	Pulp and Paper Technology A, B and C. Pulp and Paper Laboratory A, B and C	

DIPLOMA PULP AND PAPER TECHNOLOGY SYLLABUS

- **Technical Literacy:** Plan, write, revise, and present technical documents.
- **Pulp and Paper Engineering Fundamentals A:** This course is designed to give first year students an introduction to concepts, principles and practices to the field of chemical engineering.
- **Pulp and Paper Engineering Fundamentals B:** This course introduces the student to the fundamental knowledge area of chemical engineering - material and energy balances on single and multiple-unit processes.
- **Principles of Management:** The purpose Principles of Management is to equip the student with a basic understanding of the intricacies of Human Resource management and the Labour Relations Act.
- **Pulp and Paper Laboratory A, B & C:** Develop problem-solving skills by experimentation through a series of short and long projects on chemical engineering unit processes.
- **Unit Operations A:** Develop understanding of techniques and principals, design and assessment of a number of unit operations in which heat and mass transfer are involved.
- **Unit Operations B:** Development of the fundamentals of fluid mechanics, and its application to chemical engineering operations.
- **Chemistry A:** The principles of general and organic chemistry are explained.
- **Chemistry B:** Apply knowledge and principles of physical chemistry applicable to chemical engineering. Gas Laws will be stated and relevant calculations performed based on these Laws.
- **Chemistry C:** The student will be able to acquire and demonstrate scientific principles relevant to organic chemistry. Computer applications: Provides knowledge and understanding of personal computers in terms of hardware, operating systems and networking. Expose students to commonly used software packages.
- **Pulp and Paper Science I:** The basic scientific principles upon which the conversion of raw material to pulp and paper is based.
- **Pulp and Paper Technology A:** Introduce the learner to the chemistry and technology of pulping, bleaching & recovery in modern pulp mills.
- **Pulp and Paper Technology B:** Papermaking technology – all processes and sub processes are included.
- **Pulp and Paper Technology C Thermodynamics:** Introduce learners to the engineering applications of heat, work and their interactions.

DIPLOMA PULP AND PAPER TECHNOLOGY SYLLABUS (cont.)

- **Cornerstone 101:** Induct students into the community of higher education, with values and practices that promote self-awareness, social justice and environmental sustainability.
- **Mathematics A:** Numbers and Algebra, Areas and Volumes, Trigonometry, Graphs, Complex Numbers and Calculus.
- **Mathematics B:** Differentiation, Integration; Linear algebra, Statistic and probability.
- **Physics A:** Units, Physical Quantities, Vectors; Equilibrium of a particle; Newton's Second Law, Gravitation; Work and Energy; Impulse and Momentum; Torque; Elasticity and Periodic Motion. 41
- **Physics B:** Thermodynamics; Mechanical Waves; Vibrating Bodies; Acoustic Phenomena; Coulomb's Law and Current, Resistance and Capacitance.
- **Physics C:** The Magnetic Field; Inductance; Maxwell's Equations; Electromagnetic Waves; The Nature and Propagation of Light; Atomic and Molecular Structure.
- **Transfer Processes:** Enable learners to understand and apply driving principles behind heat and mass transfer in order to solve problem relating to designing and improving efficiency of unit operations.

Advanced Diploma (ADPPT1): Programme Structure

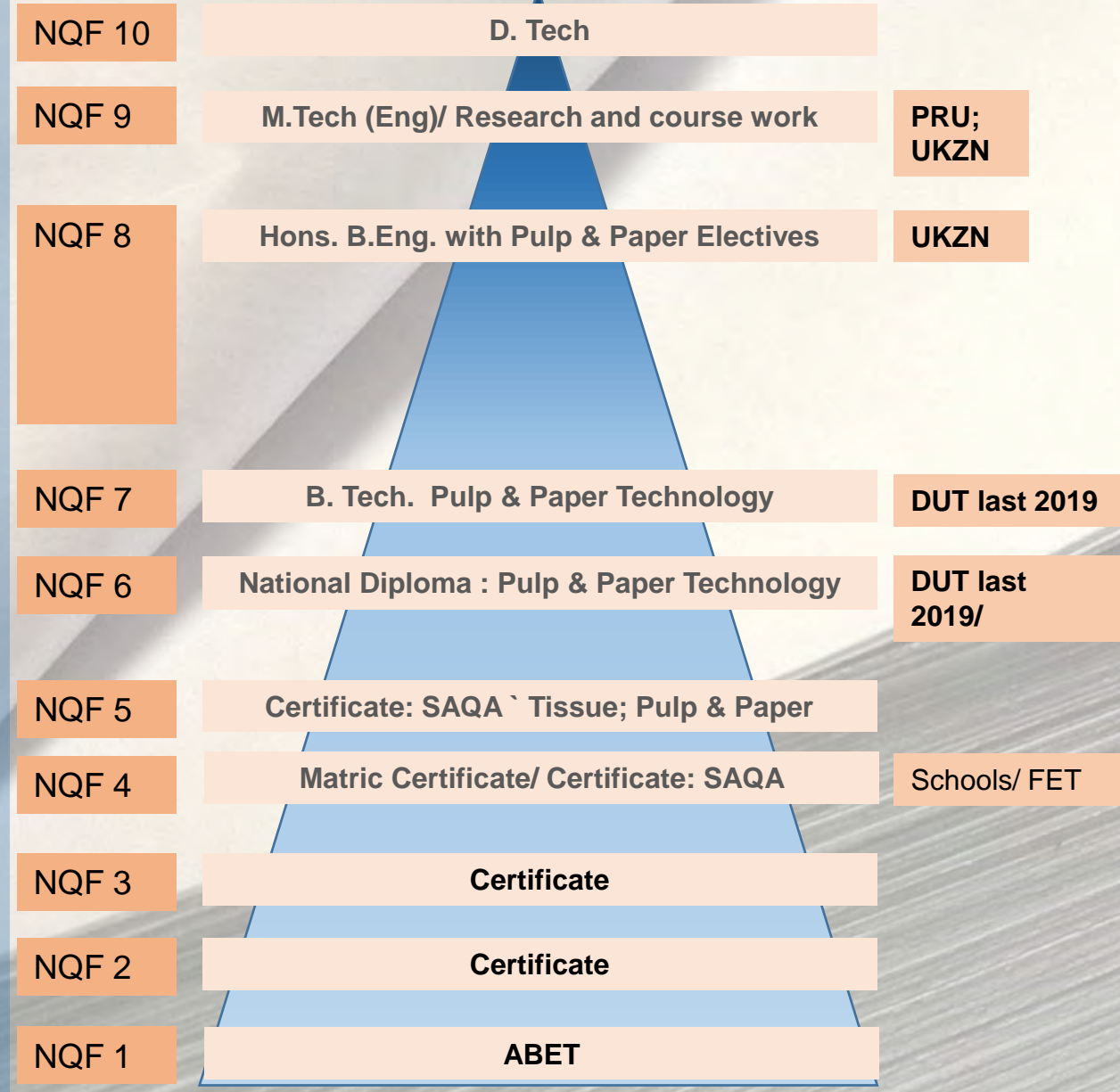
MODULE	SEMESTER	ASSESSMENT	NQF LEVEL	SAQA CREDITS	PRE -REQUISITES
Fibre preparation A	1	Examination	7	16	Nil
Fibre preparation B	2	Examination	7	16	Nil
Paper manufacture A	1	Examination	7	16	Nil
Paper manufacture B	2	Examination	7	16	Nil
Operations research and statistics	3	Examination	7	8	Nil
Environmental engineering	3	Examination	7	8	Nil
Process optimization project A	3	Continuous assessment	7	8	Nil
Operations and financial management	4	Examination	7	8	Nil
Process optimization project B	4	Continuous assessment	7	16	Process optimization project A
Pulp and paper products and applications	4	Examination	7	8	Nil

ADVANCED DIPLOMA PULP AND PAPER TECHNOLOGY SYLLABUS

- **Paper Manufacture A and B:** To equip the learner with an advanced and comprehensive theoretical basis of the main unit operations that form the basis of the South African paper manufacturing industry.
- **Fibre Preparation A :** Equip the learner with an advanced and comprehensive theoretical basis of the fibrous raw materials and pulping processes that form the basis of the South African pulp manufacturing industry.
- **Fibre Preparation B:** Equip the learner with an advanced and comprehensive theoretical basis of the fibrous raw materials and pulping and bleaching processes that form the basis of the South African pulp manufacturing industry.
- **Operations Research and Statistics:** The purpose of this module is to introduce the learner to quantitative optimisation techniques and to apply standard statistical data processing techniques to continuous processes typically found in the industry.
- **Environmental Engineering:** Introduce the learner to environmental legislation, environmental assessment methodologies and environmental management systems. The students are made aware of the nature and sources of pollution produced by pulping and papermaking operations and mitigating/treatment methods are explored.
- **Operations and financial management:** The purpose of this module is to introduce the learner to: the local and international pulp and paper market and industry; technical and project management concepts; costing and capital budgeting.
- **Pulp and paper products and applications:** The measurement of final product properties, process vs product optimisation and relating properties to user requirements
- **Process Optimisation Project A:** Develop essential problem solving, analysis and communication skills, as well as to integrate and make relevant the technology learnt in the theoretical phase of the programme, the student is required to complete an investigative optimisation project in a pulp or paper context.
- **Process Optimisation Project B:** Conduct an investigative study in order to solve a real process problem in a pulp or paper mill. Communicate the findings in a scientifically acceptable manner.

Accredited Qualifications ladder

OLD



NEW

