

# OPERATIONS & QUALITY MANAGEMENT



2022  
HANDBOOK



 FACULTY OF  
MANAGEMENT  
SCIENCES

# HANDBOOK FOR 2022

## FACULTY of MANAGEMENT SCIENCES

**DEPARTMENT of  
OPERATIONS & QUALITY MANAGEMENT**

## **DEPARTMENTAL MISSION**

To provide a quality service to learners at both undergraduate and post graduate level, through formally accredited programmes, in the field of Operations, Production and Quality Management.

The Department is committed to producing self-motivated, independent thinking and professional graduates in these fields

### **What is a University of Technology?**

A university of technology is characterized by being research informed rather than research driven where the focus is on strategic and applied research that can be translated into professional practice. Furthermore, research output is commercialized thus providing a source of income for the institution. Learning programmes, in which the emphasis on technological capability is as important as cognitive skills, are developed around graduate profiles as defined by industry and the professions.

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## IMPORTANT NOTICE

The departmental rules in this handbook must be read in conjunction with the University of Technology's General Rules contained in the current General Handbook for Students.

## NOTE TO ALL REGISTERED STUDENTS

Your registration is in accordance with all current rules of the Institution. If, for whatever reason, you do not register consecutively for every year/semester of your programme, your existing registration contract with the Institution will cease. Your re-registration anytime thereafter will be at the discretion of the Institution and, if permitted, will be in accordance with the rules applicable at that time.

## **I. CONTACT DETAILS**

All departmental queries to:

Secretary:	Mrs. K. Chellan
Tel No:	031-3735158
Fax No:	031-3735337
Location of Department:	“B” Block, 1 <sup>st</sup> floor, ML Sultan Campus

All Student registration queries to: Faculty

Officer:	:	L N Zwane
Tel No:		031-3735156
Location of Faculty office:		A-Block, 1st Floor, ML Sultan Campus

Executive Dean:	Prof Fulufhelo G Netswera
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Tel No:	031-3735130
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Fax No:	031-3735333
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Location of Executive Dean's office:	A-Block, 1st Floor, ML Sultan Campus
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## **2. STAFFING**

### **Head of Department**

### **Senior Lecturers**

### **Lecturers**

### **Part Time**

### **Name and Qualification**

Dr. M. Ramchander (D. Com)

**Dr. R. Naidoo** (DPhil Quality Management)  
Prof. S. Singh (D-Tech: Quality)

**Mr. R. Ramlagan** (M-Tech: Quality)  
**Mr. R. Moodaliyar** (M-Tech: Quality)  
**Ms. N. Nogaya** (M-Tech: Quality)  
**Mrs. P. Ximba** (MBA)  
**Dr. R Rathilal** (D-Tech: Quality)  
**Mr. X. Dyonase** (M-Tech: Operations Man)

**Dr. S. Seethal** (PhD)  
**Mr. M. M. Nadar** (MPhil: Quality)  
**Mrs. T Reddy** (Masters: Water Mgt.)  
**Mr. K Singh** (MPhil: Quality)  
**Ms. S Singh** (MBA)  
**Ms. L Naidoo** (MBA)  
**Mr K Nyathi** (Masters: Opt. Research)  
**Mr T David** (Masters: Information Tech.)  
**Dr. R. Bansi** (PhD: Public Admin)

### **3. PROGRAMMES OFFERED BY THE DEPARTMENT**

Programmes are offered in this Department which, upon successful completion, lead to the award of the following qualifications:

#### **Qualification**

Higher Certificate in Operations Management SAQA ID. 111412

Diploma in Management Sciences: Operations Management SAQA ID. 94830

Advanced Diploma in Management Sciences: Operations Management. SAQA ID. 111427

Advanced Diploma in Management Sciences: Quality Management SAQA ID. 111427

Post Graduate Diploma in Management Sciences: Operations Management SAQA ID. 111313

Post Graduate Diploma in Management Sciences: Quality SAQA ID. 111313

Master of philosophy in Quality Management SAQA ID 102021

Doctor of Philosophy in Business Quality Management SAQA ID.96819

The following programme is phased out and there will be no registration of students.

ND: Operations Management (Phase out period from 2015 to 2019 = 5 years)

The B-Tech Operations Management and the B-Tech: Quality (Phase out period from 2019 – 2021)

### **4. PROGRAMME INFORMATION**

The department offers the Higher Certificate in Operations Management on a part time basis only. The Higher Certificate is a one-year NQF level 5 qualification. On completion of this qualification, the student graduates with a Higher Certificate NQF level 5, 120 credit qualification. If a student intends to study further, the student may apply for admission on to the Diploma, subject to entry requirements for the Diploma. The Diploma is offered on a full time and part time basis. Both the Advanced Diploma programmes are offered on a part time basis.

The Master of Philosophy in Quality Management and Doctor of Philosophy in Business Quality Management are offered on a full time and part-time basis. The full-time instructional programmes are offered to students between 08:00 and 16:50 daily. For those who are employed, a part-time lecture programme is arranged between the hours of 17:00 and 19:30. Tutorial programme is available to full time and part time students. Tutorials for part time students are scheduled on Saturdays to accommodate students that work in the evenings after 19h30pm. The programme content, final examinations and diploma issued are the same for both groups.

The Diploma in Management Sciences (Operations Management) has been developed to produce competent graduates who are grounded in the

fundamental theory and principles that underlie the practice and growth in this field. This 360-credit diploma is at a NQF level 6 and is aligned with the qualification description as per the HEQF. In keeping with the institution's aims of creating, maintaining and developing its relationships with commerce, government and industry, this diploma seeks to further strengthen the link between the institution and the world of work. The learning environment is flexible in both its mode of delivery and its methodologies, with a combination of formal face-to-face classes, technology based and independent learning contributing to the learners' experience



#### 4.1 Entrance requirements for the Higher Certificate in Operations Management are as follows:

In addition to Rule G7, applicants with a **National Senior Certificate (NSC)** or a **Senior Certificate (SC)** qualification must score a minimum of 20 points, and achieve a minimum rating/symbol for English as reflected in the Table below. Applicants with a **National Certificate (Vocational) level 4** qualification must score a minimum of 50% for English or Communication.

Compulsory Subjects	NSC	SC		NCV
	Rating	HG	SG	
English home language/English first additional language/Communication	3	E	D	50%

The total points scored by an applicant with a **National Senior Certificate (NSC)** will be calculated as follows:

Rating	Points
7	7
6	6
5	5
4	5
3	4
2	3
1	--

The total points scored by an applicant with a **Senior Certificate (SC)** will be calculated as follows:

Symbol	Points: Higher Grade	Points: Standard Grade
A	8	6
B	7	5
C	6	4
D	5	3
E	4	2
F	3	1

- In calculating the points scored by a student, Life Orientation and more than one additional language will be excluded.

## 4.2 Entrance requirements for the Diploma in Management

### Sciences (Operations) are as follows:

Applicants wishing to enroll for the Diploma: Management Science (Operations Management) at the Durban University of Technology are required to have current matric National Senior Certificate (NSC)/NQF4 equivalent qualification, with a minimum of 25 points excluding Life Orientation.

#### Explanation of Points scale:

Symbol	Senior Certificate	
	Higher Grade(HG)	Standard Grade (SG)
<b>A</b>	8	6
<b>B</b>	7	5
<b>C</b>	6	4
<b>D</b>	5	3
<b>E</b>	4	2
<b>F</b>	3	1

	NSC	
	Level	Points
90-100%	7	8
80-89%	7	7
70-79%	6	6
60-69%	5	5
50-59%	4	4
40-49%	3	3
30-39%	2	2
0-29%	1	1

The following admission rating system will be used when selecting students:

DEPARTMENTAL NSC REQUIREMENTS		DEPARTMENTAL SENIOR CERTIFICATE REQUIREMENTS		
<b>NSC Diploma Entry</b> <b>A minimum of 25 points excluding Life Orientation will be considered.</b>		<b>A Senior Certificate or equivalent qualification will be considered.</b> Applicants with 20 or more points will be considered		
Compulsory Subjects	NSC Rating Code	Compulsory Subjects	HG	SG
English (home) <b>OR</b> English (1st additional)	3 4	Engl 1 <sup>st</sup> lang <b>OR</b>	E	C
Maths <b>OR</b>	3	Engl 2 <sup>nd</sup> lang	D	B
Maths Literacy	4	Maths	E	C
And two 20 credit subjects (not more than 1 language)	3			

If the number of applications exceeds the number of spaces available, the department reserves the right to apply a ranking system to select students.

**Or**

A National Certificate (Vocational) Level 4 issued by the Council for General and Further Education and Training with a) at least 50% in three fundamental subjects, including English; and b) at least 60% in three compulsory vocational subjects

**Or**

An access pathway will be provided for mature students (older than 23 years with a minimum of 3 years work experience in a related field and pass the proficiency test. Learners may also be granted access to the qualification through DUT's Recognition of Prior Learning (RPL) process.

**Selection criteria for this programme.**

Applicants must meet the minimum requirements mentioned in 4.1 and 4.2 above. NSC and NCV applications received via the Central Applications Office (CAO) will be scored and ranked from highest to lowest points. Based on these rankings, those learners with the highest points will be offered a firm place, the learners who have applied with their grade 11 results may be offered a conditional place subject to them meeting the requirements in 4.1 and 4.2 above.

## **4.3 Registration**

4.3.1 All courses offered are semester courses and registration takes place once a year in January. Admission to first year of study is in January. See General Rules G3, G4, G5, G6, G16 and G7.

4.3.2 The last date for acceptance of late enrolments or transfers from other departments will be four weeks from the commencement of lectures.

4.3.3 Applications by students wishing to transfer from other institutions/courses will be considered on an individual basis and may be accepted into the first year of the Diploma in Management Sciences (Operations Management)

#### **4.4 Exemptions and transfers**

Students will be able to carry credits from the ND: Operations Management to the new qualification within a four-year period. See General Rules G8 and G9.

#### **4.5 Work done during the year**

1. Year marks/course marks shall be determined in accordance with the requirements as indicated in the learner guides. For details of assessment refer to the learner guide pertaining to each subject. Failure to meet these requirements will disqualify a student from writing the final examination in the subject concerned.
2. Notwithstanding Rule G12 a year/semester mark obtained for any subject is valid only for the main examination in the year/semester in which a student is registered plus the supplementary examination in that subject if granted to the student in terms of Rule G13.
3. Students must verify course marks before the final examinations are written. A 40% course mark/DP is needed to gain entry into the exam.

#### **5 Student conduct**

See General Handbook Rules SR1 to SR12

#### **6 Experiential Learning applicable for the Diploma in Management Science (Operations)**

**Refer to Rule G28.**

In order to complete the requirements for the Diploma in Management Sciences (Operations), all full-time students who are bona fide final year students (i.e. students who will complete their diploma programme at the end of the third year) will be required to undertake a period of three months project-based learning in an industrial/commercial organisation.

Details are available in the Departmental Experiential Learning Policy document. The student may be required to complete an official logbook detailing duty performed and be subject to an end-of-training evaluation by the immediate supervisor.

Although the Institution undertakes to assist the student/candidate in obtaining suitable experiential learning placement, the student/candidate should make efforts to find an “employer”.

The employer must be accredited by the Durban University of Technology for the purposes of experiential learning. An experiential learning agreement creates a separate contract between the “employer” and the student/candidate.

## 7 Programme Structure for Higher Certificate in Operations Management

Name of module	Module Code	Study Level	NQF Level	Module Credit	C/E *	Pre-Req.	Co-Req.	Exam
Financial Literacy	FNLT101	I	5	12	C	NIL	NIL	No
Introduction to Technology	ITLG101	I	5	12	C	NIL	NIL	No
Cornerstone 101	CSTN101	I	5	12	C	NIL	NIL	No
Essentials of Operations Management	EOPM101	I	5	20	C	NIL	NIL	No
Essentials of Project Management	ESPM101	I	5	16	C	NIL	NIL	Yes
Fundamentals of Quality	FUOQ101	I	5	16	C	NIL	NIL	Yes
Introduction to Operations Management Techniques	IOMT101	I	5	16	C	NIL	NIL	Yes
Introduction to Organisational Effectiveness	INOF101	I	5	16	C	NIL	NIL	Yes
<b>TOTAL</b>				<b>120</b>				

## 8 Programme structure Diploma Management Science: Operations

Code	Subjects	Assessment method	Semester	NQF level	Pre-Req	Major Subjec
CSTN101	Cornerstone 101	C	1	5		
EVST101	Environmental Sustainability	C	1	5		
IBSL101	Introduction to Business Law	C	1	5		
ITRB101	Introduction to Business	C	1	5		
QAPM101	Quantitative Approaches to Management Sciences	C	1	5		
TASM101	Time & Stress Management	C	2	5		
LWLF101	Law for Life	C	2	5		
ALWR101	Academic Literacy	C	2	5		
BCIF101	Business Communication & Information Literacy	C	2	5		
	Financial Literacy	C	2	5		
<b>Yr 2</b>						
OPRM101	Operations Management 1	E	1	6		Yes
OPRT101	Operations Management Techniques 1	E	1	6		Yes
OEFC101	Organizational Effectiveness 1	E	1	6		Yes
ITLG101	Introduction to Technology	E	1	6		
OPRM201	Operations Management 2	E	2	6	Operations Management 1	Yes
OPRT201	Operations Management Techniques 2	E	2	6	Operations Management Techniques 1	yes
OEFC201	Organizational Effectiveness 2	E	2	6	Organizational Effectiveness 1	Yes
WKPR101	Work Preparedness	E	2	6		
<b>Yr 3</b>						
OPRN301	Operations Management 3	E	1	6	Operations Management 2	Yes
OPRT301	Operations Management Techniques 3	E	1	6	Operations Management Techniques 2	Yes
OEFC301	Organizational Effectiveness 3	E	1	6	Organizational Effectiveness 2	Yes
PRJC101	Project Management	E	1	6		
SCHM101	Supply Chain Management	E	2	6		
WKSM101	Work Sampling	E	2	6		
OPEN101	Entrepreneurship	E	2	6		
QMNS101	Quality Management Systems	E	2	6		

C = Continuous Assessment

E =Final Examination

## **9 Progression rules including pass requirements**

1. The final pass mark for all subjects is 50%.  
Students who have failed any modules in a previous semester are required to register for the failed modules first before any new modules are added.
2. Students may not register for more than 0,5 HEMIS credits per semester.
3. Where a module has a pre-requisite module, students are required to pass the pre-requisite module first.

See General Rule G14, G15, G16 and G21B.

## **10. Exclusion rules**

Notwithstanding DUT General Rules relating to unsatisfactory students (G17, G21, G22 and G23), any student who does not pass a minimum of 40% of the modules for which they were registered in a year will be prevented from re-registering for the qualification. Students will have the right to appeal against their exclusion.

## **11. Subject Content**

Students to read this section in conjunction with the relevant learner guides.

## **12. RULE DETAILS**

### **ENTRANCE REQUIREMENTS**

See General Rules G7.

## **REGISTRATION**

See General Rules G3, G4, G5, G16 and G6. Single registration system introduced in 2020.

## **SYLLABI**

The syllabus for each subject indicated in the instructional programme above is published at the end of the handbook in alphabetical order.

## **ADVANCED DIPLOMA IN MANAGEMENT SCIENCES: OPERATIONS MANAGEMENT**

### **Course Objective:**

Manufacturing industries in South Africa play an important role in the South African economy as it employs a large percentage of the labour force. Job opportunities, therefore, are great in this sector.

Within the manufacturing sector the greater portion of the workers are engaged in the Production Function which includes specialist fields such as Quality Control, Work Study, Production Planning and Control, Inventory Control, Operations Research, etc. This Advanced Diploma prepares students to enter any of the specialist fields in production or to go directly into supervision of workers and later as Production/Operations Managers. Although experiential training is not compulsory, every effort is made to expose students to manufacturing organisations with visits and periodical training in factories.

**ENTRANCE REQUIREMENTS** for the Advanced Diploma in Operations Management are:

The ND: Production/Operations Management, Diploma in Management Sciences: Operations or an equivalent three year 360 credits tertiary qualification.

### **Selection criteria for this programme.**

Applicants must meet the minimum requirements mentioned above. An acceptance list is compiled based on the first come first serve principle, provided that the student timeously furnishes the department with all relevant registration documents. Based on this list students will be offered a firm place on the programme. The department is obliged to adhere to the approved DHET Enrolment plan.

## **REGISTRATION**

See General Rules G23, G16. The single registration system is introduced in 2020.

## **INSTRUCTIONAL PROGRAMME**

The programme comprises Six (6) modules:

Semester 1:

- Research Methodology
- Organisational Behaviour
- Project Management

Semester 2:

- Advanced Operations Management IV
- Advanced Operations Management Techniques IV
- Finance for Non-Financial Managers

## **DURATION OF INSTRUCTIONAL PROGRAMME**

A minimum of one year part-time.



## **ASSESSMENT AND EXAMINATION**

See General Rules G12/G13

## **PASS REQUIREMENTS**

See General Rules G14 & G16

## **EXEMPTIONS**

See General Rules G8

## **SYLLABI**

The syllabus for each subject indicated in the instructional programme above is published at the end of the handbook.

## **ADVANCED DIPLOMA IN MANAGEMENT SCIENCES (QUALITY MANAGEMENT)**

### **Course Objective**

This course enables specialists in production, commerce, educational and service organizations to become qualified Quality Practitioners. The course is designed to develop innovative and entrepreneurial skills and culminates in an interactive project.

### **ENTRANCE REQUIREMENTS**

Applicants may be in possession of a Bachelor's degree, National Diploma, 360 credits 3 years Diploma or equivalent 3-year 360 credits qualification and be in possession of a minimum of two year's quality related industrial experience. In addition, a departmental entrance test will be conducted.

### **Selection criteria for this programme.**

Applicants must meet the minimum requirements mentioned above. Student scores of the entrance test will be ranked from highest to lowest. Based on these rankings, those learners with the highest scores will be offered a firm place on the programme. The department is obligated to adhere to the approved DHET Enrolment plan.

### **REGISTRATION**

New and re-enrolling students register in January.  
Single registration system was introduced in 2020. See  
General Rules G23

### **INSTRUCTIONAL PROGRAMME**

The programme comprises of six (6) modules:

Semester 1

Organisational Behaviour

Research Methodology

Quality Management Systems

Semester 2

Quality Auditing Techniques

Statistical Quality Techniques

Project Management

### **DURATION OF INSTRUCTIONAL PROGRAMME**

A minimum of one year part-time.

### **ASSESSMENT AND EXAMINATION**

There would be two tests per subject per semester. Assessments are also based on assignments and presentations held during each semester.

1 X 3-hour paper for each subject at the end of the semester.

See General Rules G12/G13

## **POST GRADUATE DIPLOMA IN MANAGEMENT SCIENCES (OPERATIONS MANAGEMENT)**

### **Course Objective:**

The purpose of this qualification is to enhance the managerial competence of students and to strengthen and deepen their knowledge in one of the following areas of Operations Management. Upon completion of the programme, students should be able to competently apply and integrate theoretical principles, evidence-based techniques, and appropriate skills to interrogate and analyse business-related problems and develop appropriate solutions. The programme also promotes the progression of learning by developing the student's ability to undertake scientific research at a more advanced level. Moreover, the programme will contribute to the personal development and growth of students and enhance their efficiency and effectiveness in a dynamic, challenging and complex organisational environment.

### **ENTRANCE REQUIREMENTS**

The minimum entrance qualification is an Advanced Diploma: Management Sciences (Operations), B-Tech Operations Management or an equivalent appropriate NQF7 qualification

### **REGISTRATION**

**New and re-enrolling students register in January**

**See general Rules G23**

### **INSTRUCTIONAL PROGRAMME**

**The programme comprises of five (5) modules:**

#### **Semester I**

**Operations Management 5**

**Business Research Proposal**

**Applied Strategic Management**

## **Semester 2**

### **Operations Management Techniques 5**

#### **Business research Report**

## **PASS REQUIREMENTS**

See General Rules G14/G16

## **DURATION OF INSTRUCTIONAL PROGRAMME**

A minimum of 1 year part-time.

## **ASSESSMENT AND EXAMINATION**

There would be two tests per subject per semester. Assessment are also based on assignments and presentation held during each semester.

1 X 3-hour paper for each subject at the end of the semester. See General Rules G12/G13

## **SYLLABI**

The syllabus for each subject indicated in the instructional programme above is published at the end of the handbook.

## **POST GRADUATE DIPLOMA IN MANAGEMENT SCIENCES (QUALITY MANAGEMENT)**

### **Course Objective**

The purpose of this qualification is to enhance the managerial competence of students and to strengthen and deepen their knowledge within a Quality Management environment. Upon completion of this programme, students should be able to competently apply and integrate theoretical principles, evidence techniques and appropriate skills to interrogate and analyse business related problems and develop appropriate solutions. The programme also promotes the progression of learning by developing the student's ability to undertake scientific research at a more advanced level.

## **ENTRANCE REQUIREMENTS**

The minimum entrance qualification is an Advance Diploma: Management Sciences (Quality)

## **REGISTRATION**

**New and re-enrolling students register in January.**

## **INSTRUCTIONAL PROGRAMME**

**The programme comprises of six (6) modules**

### **Semester 1**

Business Research Proposal  
Applied Strategic Management  
Quality Planning & Implementation

### **Semester 2**

Quality Techniques 5  
Continual Quality Improvement 5  
Business Research Project

## **ASSESSMENT AND EXAMINATION**

There would be 2 tests per subject per semester. Assessment are also based on assignment and presentation held during each semester.

IX3 hour paper for each subject at the end of the semester. See General Rules G12/G13

## **SYLLABI**

The syllabus for each subject indicated in the instructional programme above is published at the end of the handbook.

## **MASTER OF PHILOSOPHY IN QUALITY MANAGEMENT**

This is a dissertation-based qualification. Students must prove that they understand a particular problem in the industry in which they have done research, are able to analyse and set it out logically, are able to arrive at logical conclusions or a diagnosis, and are then able to make proposals for the improvement/the elimination of the problem. For further information, please address enquiries to the Department of Operations and Quality Management.

### **ADMISSION REQUIREMENTS**

B. Tech: Quality, Post Graduate Diploma in Management Sciences: Quality or an equivalent NQF level 8 qualification. See General Rules G24 (1).

### **REGISTRATION**

See General Rules G26.

### **DURATION**

See General Rules G24 (2).

### **ASSESSMENT AND DISSERTATION**

See General Rules G24 (4).

## **DOCTOR OF PHILOSOPHY IN BUSINESS QUALITY MANAGEMENT**

This is a thesis-based qualification. In thesis students must provide proof of original and creative thinking, development work and problem-solving, and make a real contribution to the solving of a particular problem in the industry to which their research applies. For further information, please address enquiries to the Department of Operations and Quality Management.

### **ADMISSION REQUIREMENTS**

MPhil Quality Management, M-Tech Quality or an equivalent qualification. See General Rules G25.

## **SYLLABI**

**Note 1** Unless otherwise indicated all Year/Course marks will comprise 40% of the final examination mark. The examination shall comprise 60% of the final mark.

**Note 2** Unless otherwise indicated all courses are of one semester duration.

## **MODULE CONTENT: HIGHER CERTIFICATE IN OPERATIONS MANAGEMENT**

### ***DUT Cornerstone 101***

The module will start with the analysis of a current issue (one critical event or development will be analysed; the event in focus will be selected on the basis of its connections to the theme of journeys and its relevance to the issues of ethics, diversity and critical citizenry). The topics will include such topics as the following, not necessarily in this sequence:

#### **Our journeys: moving into higher education**

- Journeys from self to community (including forms of community engagement and service)
- Journeys of migration, discovery and coercion (including movement of labour)

### **Financial Literacy**

Savings and budgeting

Debt Reduction and Asset Building (bank statement and bank recon) (interest rate, compound and simple)

Building a good credit rating

Consumer Protection (link with law)

Wages and taxation (basic categories, direct and indirect, vat, individual tax)

Investment Planning

Retirement (Building a pension fund / provident fund)

### **Introduction to Technology**

Overview of computer terminology

Overview of the Ethics of Information Technology.

Access to the internet, upload and downloading files

Overview of MS Word

Overview of a presentation package such as PowerPoint

### **Essentials of Operations management**

Introduction to Operations Management, Product and service design, Facilities Layout, Location Planning & Analysis.

### **Introduction to Project management Tools and Techniques**

Liner Programming, Simplex Method, Transportation, Measures of location for ungrouped Data, Measures of location for grouped Data.

## **Fundamentals of Quality**

Introduction to quality, History of quality – the quality gurus, Quality Assurance versus quality control, Total Quality Management, Dimensions of quality, Costs of quality, TQM tools.

## **Introduction to Organisational effectiveness**

Productivity, Human Factor in the Application of Work Study, working conditions and the working environment, Method Study in the office, Problem Solving Techniques.

## **Essentials of Project management**

Introduction to Project Management, The Project Management Process, Project Teamwork, Project Communication and Information Systems, Project Risk Management, An introduction to Project Tools



## **MODULE CONTENT - Diploma in Management Sciences (Operations Management)**

### **DUT Cornerstone 101**

The module will start with the analysis of a current issue (one critical event or development will be analysed; the event in focus will be selected on the basis of its connections to the theme of journeys and its relevance to the issues of ethics, diversity and critical citizenry). The topics will include such topics as the following, not necessarily in this sequence:

#### **Our journeys: moving into higher education**

- Journeys from self to community (including forms of community engagement and service)
- Journeys of migration, discovery and coercion (including movement of labour)

### **Environmental Sustainability**

1. Ecological studies
  - Ecosystems
  - Biodiversity
  - Conservation
  - Hydrological cycle
2. Climatology
  - Global warming and climate change
  - Effects on biodiversity
  - Strategies to curb facilitated climate change
3. Environmental health
  - What is environmental health?
  - Pollution
  - Environmental risk and society
  - Sustainable development
4. Environmental sociology
  - Traditional environmental knowledge
  - Poverty, abuse and crime
  - Resource management
  - Poverty, abuse and crime

### **Law for Life**

1. Life scenario: Motor vehicle accident:
  - Criminal law- purpose, procedure, parties, bail, sentences
  - Civil law-purpose, procedure, parties, outcomes
  - Law of insurance-purpose, concept of risk, the contract of insurance, the parties, the premium, the insurable interest and the doctrine of subrogation
  - Road Accident Fund- effect on the common law, purpose of the fund,

application, forms

2. Life scenario: A man wishes to get married, he already has one wife.  
Different types of marital regime in South Africa
  - civil unions
  - customary unions
  - same sex life partnerships
3. Life scenario: A man dies leaving three wives and eight children.
  - The law of testate and intestate succession.
  - The requirements for a valid will.
  - Drafting a valid will.
  -

## **Introduction to Business**

Business Environment

The nature of the business environment?

External, market and internal environments and their inter-relationship. Environmental analysis

Business Management

The nature of business management.

Management concepts: Planning, organising, leading and controlling. Decision-making process

Careers in Business

Management Marketing

Management

What is Marketing Management?

The 4P's (Product, Price, Promotion and Place) Careers in Marketing

Management

Retail Management

What is Retail

Management?

Functions of

Retailing

Retail mix

Role of retail in the

supply chain Careers in

Retail Management

Human Resources

Management

What is Human Resources Management & Personnel

Management? Careers in Human Resources Management

Public Relations Management

What is Public Relations

Management? Functions of

Public Relations

Careers in Public Relations  
Management  
Operations  
Management  
What is Operations Management?  
Concepts of efficiency, factories, products, layouts and quality.  
Careers in Operations Management

## **Quantitative Approaches to Management Sciences**

Basic Number  
Calculations  
Working with  
Fractions  
Working  
with Decimals  
Decimal Fractions  
Working with  
percentages  
Using a  
calculator  
Ratios  
Powers  
and Roots  
Algebra  
Graphical representations – straight  
line graph  
Tables and Charts  
Statistics

**Time and Stress Management** Introduction  
to Stress and Stress Management  
Building Stress Management Skills  
Understanding Time Management  
Overcoming Barriers to Effective Time  
Management  
Purpose of Planning  
Personal Goal Setting

## **Introduction to Business law**

Basic framework of the South African legal system.  
General principles of the law of contract.  
The principles of consumer law in South Africa.  
Brief overview of the Basic Conditions of Employment Act 75 OF 1977.  
Brief overview of social security at work: Unemployment Insurance Act 63 of 2000, Compensation for Occupational Injuries and Diseases Act 130 of 1993.  
Specialisation specific:  
Legislation relating to packaging in South Africa.  
Intellectual property law.

The law relating to electronic payment systems.  
Dismissals and unfair labour practice. The Labour Relations Act 66 of 1995. Censorship  
Freedom of expression

### **Business Communication and Information Literacy**

Group roles, functions and behaviour, and reflection on own and others' performance. Format and conventions for: various types of business letters; emails; reports; meetings documentation. Exercises for practice of the aforementioned. Functions and patterns of meetings and roles and functions of office bearers.

Accessing and searching electronic catalogues and databases for specific items; evaluating items so found. Use of at least one referencing system.

### **Financial Literacy**

Savings and budgeting

Debt Reduction and Asset Building (bank statement and bank recon) (interest rate, compound and simple)

Building a good credit rating

Consumer Protection (link with law)

Wages and taxation (basic categories, direct and indirect, vat, individual tax)

Investment Planning

Retirement (Building a pension fund / provident fund)

### **Academic Literacy**

Students will be introduced to the concept of academic literacies and the link between reading literature and literacy. Also, academic research and the writing of assignments will be discussed. The problems associated with referencing and plagiarism will be addressed. Distribution of novel and learner guides will take place. Text reading targets for the structured completion of students' own reading of the novel will be set. Students will discuss in groups selected passages from novel with respect to register, culture and purpose. Oral feedback session.

Students will identify parts of sentence construction and compare direct and indirect speech. Students will complete a short written quiz to assess their progress in the reading of the novel. (online exercises)

Analysis of paragraphs. Students will identify topic sentences and other functionalities. Group work discussions and critical thinking on themes related to gender relations and language.

Students will write a short (15 lines) paragraph each related to group discussions on gender. Formative assessment and feedback to be given.

Students to read aloud in class from the novel!

Research Report Writing Workshop. Developing the basics of the academic research writing process.

Further developed by online exercises.

Proof-reading and correction exercises. Focus on punctuation and accuracy.

Writing and re-writing exercises. Focus on expression and clarity.  
Group discussions and worksheet on multilingualism and translation in texts. Focus on glossary and dictionary use.  
On-line self-assessments of students' progress with the prescribed novel.  
Students will complete a short written quiz to assess their progress in the reading of the novel.

Textual analysis: Students will analyse selected passages from the novel and in groups complete worksheet on transculturation/intercultural communication.

Summary writing: purposes and strategies.

Summary writing exercises.

Summary writing: selecting relevant information.

Summary writing exercises.

Self-reflection:

How has reading the novel helped develop my academic literacy/literacies?

What role does culture play in the modern lifestyle of both work and leisure?

Submission of short written piece based on this reflection.

## **Year 2**

### **Operations Management I**

Introduction to Operations Management. Competitiveness, Strategy and Productivity. Product and Service design. Capacity Planning. Process Selection & Facility Layout. Location Planning & Analysis. Introduction to Quality.

### **Operations Management Techniques I**

Linear programming: model formulation. Linear programming: Graphical solution. Linear programming: Simplex method of solution. Transportation models.

### **Introduction to Technology**

Overview of computer terminology

Overview of the Ethics of Information Technology.

Access to the internet, upload and downloading files

Overview of MS Word

Overview of a presentation package such as PowerPoint

### **Organizational Effectiveness I**

Introduction to Effectiveness; Functions of management services; Productivity; Productivity & the Quality of life; Work study & productivity; Problem solving techniques; People within organizations; The human factor in enterprise operation; Work study & management; Work study & supervision; Work study & the worker; The management services practitioner.

Methods & Systems Improvement. Method study & the selection of jobs; Record, examine, develop; Movement of workers in the working areas. Evaluate, define, install, maintain.

Improving Administrative System. The importance of method study in the office; The procedure for improving methods of work in the office; design and control of forms; Office layout.

Work Measurement: Time study. The equipment; Selecting and timing the job; Rating; From study to standard time.

## **Operations Management 2**

Quality control and continuous improvement. Supply chain management. Purchasing and supplier management. Inventory management. Aggregate planning. Just-In-Time System (JIT). Scheduling. Logistics Management.

## **Operations Management Techniques 2**

Linear programming: Applications. Decision theory. Quality techniques. Project management. Reliability. Matrices. Markov analysis.

## **Organizational Effectiveness 2**

Standards. Follow-up and uses. Work sampling. Gain sharing schemes. Operation analysis. Manual work design. Workplace, equipment, and tool design. Work environment design. Design of cognitive work. Standard data. Pre-determined time systems.

## **Work Preparedness**

Techniques for identifying personal strengths and weaknesses

Career planning and goal setting

Employment barriers and overcoming them

Sources of career and job opportunity information

Job search techniques

Styles, types and applications of the CV (resume)

The written CV

Researching prospective employers

Preparation for interviews

Interviewing techniques

Dress and hygiene practices

Ethical behaviour and punctuality

Realistic expectations

## **Operations Management 3**

Total quality management. Total productive maintenance. Project management resources planning & analysis. Production finance - budgets, cash flow, statements of account. Case studies.

## **Operations Management Techniques 3**

Advanced linear programming applications. Sensitivity analysis and Duality. Waiting lines. Monte Carlo simulation. Integer programming. Goal programming

## **Organizational Effectiveness 3**

The nature of organisational behaviour. Corporate responsibilities and Ethics. Managerial behaviour and effectiveness. Organisation strategy and structure. Patterns of structure and work organization. Technology and organizations. Job satisfaction. Organisation culture and change

## **Project Management**

Introduction to Project Management  
The Project Management Process  
Dealing with Project Stakeholders  
Project Leadership  
Teamwork  
Communication and Information Systems  
Project Risk Management  
The 9 knowledge areas of Project Management (PMBOK)  
An introduction to Project Tools

## **Work Sampling**

Planning the work sampling study  
Determining the number of observations required  
Determining the observation frequency  
Designing the work sampling form  
Using control charts  
Recording observations  
Analysis of data  
Machine and operator utilisation  
Determining allowances  
Determining standard time  
Self-observation  
Preparation of report  
Conducting presentations

## **Supply Chain Management**

Key issues of supply chain management  
Recent trends in supply chain management  
Complexities that are involved with global supply chain  
Strategic, tactical and operational responsibilities of supply chain management  
Requirements of an effective supply chain.  
Challenges in creating an effective supply chain  
Procurement  
Purchasing interfaces  
The purchasing cycle  
Centralised vs decentralised purchasing  
Ethics in purchasing  
Supplier Management  
Choosing suppliers  
Suppliers audits  
Supplier certification  
Supplier relationship management  
Logistics  
Movement within a facility

Incoming and outgoing shipments  
Tracking goods  
Evaluating shipping alternatives  
Supply chain strategies  
Many suppliers  
Few suppliers  
Vertical integration  
Keiretsu networks  
Virtual companies

## **Entrepreneurship**

Introduction to entrepreneurship; The entrepreneurial life/ starting the business;  
The business plan; Financial and marketing plan  
Business Organizations: Types of businesses:  
Legal forms of ownership  
Franchising  
Sole proprietorship  
Partnership  
Corporation  
Analysing a business environment  
Evaluating a business  
Customer relationship

## **Quality Management Systems**

Background to QMS; Investigating quality mechanisms in an organisation ; Stakeholder consultation; Planning the QMS; Designing the QMS; Implementation processes



## **MODULE CONTENT – ADVANCED DIPLOMA IN MANAGEMENT SCIENCES (OPERATIONS MANAGEMENT)**

### **RESEARCH METHODOLOGY**

Introduction to research. Research Ethics. Information retrieval. Formulating a research proposal. Survey research & analysis. Qualitative methods & analysis. Qualitative methods & data analysis. Report writing & dissemination.

### **ORGANISATIONAL BEHAVIOUR**

Introduction to organisational behaviour; Managing demographic and cultural diversity in organisations Individual differences and perception; Motivation theories Managing groups and teams Communication Leadership; Conflict and negotiations; Organisational culture Organisational change

### **PROJECT MANAGEMENT**

Introduction to Project management; The Project lifecycle; Project management process; Project Methodology; Project stakeholder management; Project time management; Project procurement management Project Resource Management Project cost management; Project quality management; Project Risk Management

### **ADVANCED OPERATIONS MANAGEMENT IV**

Product planning and competitive priorities. Process design. New technologies. Master production schedule. Materials requirement planning (MRP). Quality management. World class manufacturing (WCM). Project management. Strategic management

### **ADVANCED OPERATIONS MANAGEMENT TECHNIQUES IV**

Multidimensional linear programming applications. Dual theory and sensitivity analysis. Integer programming. Goal programming. Non-linear programming. Markov analysis. Management science and information systems.

### **FINANCE FOR NON-FINANCIAL MANAGERS**

Basic Accounting concepts; Cash Management including cash flow statements Financing options (debt versus equity: choosing the best option); Time value of money; Risk and return; Analysis and interpretation of financial statements Job costing; Cost Volume Profit Analysis

## **MODULE CONTENT – ADVANCED DIPLOMA IN MANAGEMENT SCIENCES (QUALITY MANAGEMENT)**

### **RESEARCH METHODOLOGY**

Introduction to research. Research Ethics. Information retrieval. Formulating a research proposal. Survey research & analysis. Qualitative methods & analysis. Qualitative methods & data analysis. Report writing & dissemination.

### **QUALITY MANAGEMENT SYSTEMS 3**

Basics of organizational management. Basics of quality management and quality concepts. ISO 9000:2000 systems. ISO/TS 16949, ISO 22000. ISO 14001. ISO 17025 and OHSAS 18001/50001:2011 Introduction to auditing. Case study work. Outsourcing. Risk assessment. Introduction to integration of management system.

### **STATISTICAL QUALITY TECHNIQUES 3**

Modern quality management & improvement; The DMAIC problem solving process; Describing variations; The normal distribution; Elementary probability rules; Introduction to hypothesis testing; Simple linear regression & correlation; How SPC works; Variable control chart; Attributes control charts; Determining process & measurement systems capabilities.

### **QUALITY AUDITING TECHNIQUES 4**

Product process and system audit. ISO 19011:2011. Total Quality Management in purchasing/supplier relations.

### **ORGANISATIONAL BEHAVIOUR**

Introduction to organisational behaviour; Managing demographic and cultural diversity in organisations Individual differences and perception; Motivation theories Managing groups and teams; Communication Leadership; Conflict and negotiations; Organisational culture; Organisational change.

### **PROJECT MANAGEMENT**

Introduction to Project management; The Project lifecycle; Project management process; Project Methodology; Project stakeholder management; Project time management; Project procurement management; Project Resource Management Project cost management; Project quality management; Project Risk Management

# **MODULE CONTENT – POST GRADUATE IN MANAGEMENT SCIENCES (OPERATIONS MANAGEMENT)**

## **OPERATIONS MANAGEMENT 5**

World Class Manufacturing. Advanced Project Management. Organisational Transformation and Strategic Change. Corporate Governance and Ethics. Environmental Sustainability using green Technologies. Service Quality. Global Operations.

## **APPLIED STRATEGIC MANAGEMENT**

The Strategic Management Process. Strategic direction and Environmental Analysis. Industry and Competitor Analysis. Corporate Level Strategy, Horizontal Integration, Vertical Integration, Strategic outsourcing, and Corporate diversification Strategies. Building Competitive advantage through functional level strategy. Competing in emerging economics. Implementing strategy: Core competencies, Re-engineering, and organizational structure. Corporate governance and Business ethics considerations

## **BUSINESS RESEARCH REPORT**

Overview of the study (background to the study; Research problem; Aims and objectives of the study; significance and scope of the study. Literature review. Research methodology and design. Development of a questionnaire/interview schedule. Data collection. Data analysis. Presentation, analysis, and discussion of results. Review, conclusion, and recommendations. Bibliography.

## **BUSINESS RESEARCH PROPOSAL**

Identification of a real-world research problem. Development of the aim and objectives of the study/hypotheses, and /or research questions. Selection of an appropriate research Methodology. Demarcation of the target population and selection of a sample. Preparation of a draft research questionnaire and /or an interview schedule. Completion of DUT's Ethical Issues Checklist. Preparation of letters of Information and Consent. Development of a research proposal.

## **OPERATIONS MANAGEMENT TECHNIQUES 5**

Network Optimisation Models. Non-linear Programming. Dynamic programming. Game Theory. Analytical Hierarchy process. Simulation Using Theoretical Distributions.

## **MODULE CONTENT - POST GRADUATE DIPLOMA: MANAGEMENT SCIENCES (QUALITY)**

### **BUSINESS RESEARCH REPORT**

Overview of the study (background to the study); research problem; Aim and objectives of the study; Significance and scope of the study. Literature review. Research Method and Design. Development of a questionnaire/interview schedule. Data Collection. Data Analysis. Presentation, Analysis, and discussion of results. Review, conclusion, and recommendations. Bibliography.

### **QUALITY PLANNING & IMPLEMENTATION 5**

Quality gurus. Service quality. Change management. CPA network & Gap analysis. Quality awards and excellence models. Strategic quality planning and management. Introduction to “New age gurus”. Quality 4.0

### **BUSINESS RESEARCH PROPOSAL**

Identification of a real-world research problem. Development of the aim and objectives of the study/hypotheses, and /or research question. Selection of an appropriate research methodology. Demarcation of the target population and selection of a sample. Preparation of a draft research and/or an interview schedule. Completion of DUT's Ethical Issues Checklist. Preparation of letters of information and Consent. Development of a Research proposal.

### **QUALITY TECHNIQUES 5**

Probability & discrete probability distribution. Continuous probability distribution and sampling distributions. Estimation procedures. Reliability. Sampling. EWMA Chart. CUSUM Chart. The design of experiments: one factor and randomized block. Experiments. The design of experiments: Factorial designs.

### **CONTINUAL QUALITY IMPROVEMENT 5**

Introduction to Total Quality Management. ISO 9001 and Total Quality Management. Business Process re-engineering. Quality information systems and Quality cost calculation. Motivation. Teamwork. Scenario analysis. Six-Sigma. Innovation VS optimization VS creativity. Automation.

### **APPLIED STRATEGIC MANAGEMENT**

The Strategic Management process. Strategic direction and Environmental Analysis. Industry and Competitor Analysis. Corporate Level Strategy, Horizontal Integration, Vertical Integration, Strategic outsourcing, and Corporate diversification Strategies. Building Competitive advantage through functional level strategy. Competing in emerging economics. Implementing strategy: Core competencies, Re-engineering, and organizational structure. Corporate governance and Business ethics considerations.