



# 2017 HANDBOOK OPERATIONS & QUALITY MANAGEMENT



# **HANDBOOK FOR 2017**

## **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: R. Pankhurst  
Tel No: 031-3735441  
Location of Faculty office: A-Block, 1st Floor, ML Sultan Campus

Executive Dean: Prof R Balkaran  
Tel No: 031-3735130  
Fax No: 031-3735333  
Location of Executive Dean's office: A-Block, 1st Floor, ML Sultan Campus

## **2. STAFFING**

### **Head of Department**

#### **Name and Qualification**

R. Ramlagan (MTech: Quality)

### **Senior Lecturers**

Mr. R. Naidoo (MTech: Production Management)

Dr. S. Singh (DTech: Quality)

### **Lecturers**

Mr. R. Moodaliyar (MTech: Quality)

Dr. M. Ramchunder (PhD: Admin)

Ms. N. Nogaya (Mtech: Quality)

Mrs. P. Ximba (MBA)

### **Part Time**

Dr. S. Seethal (PhD)

Mrs. S. Mohanram (BTech: Production Management)

Mr. M. Osman (BTech: Operations Management)

Mr. N. Badhur (MBA)

Ms. L. Mtunzi (MBA)

Mr A Inderlall (M-Tech; Quality)

Mr D. Singh (Msc)

Mr M. Mdubeki (MBA)

### **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**

Diploma in Management Sciences (Operations Management) SAQA NLRD ID. 94830

National Diploma: Operations Management (Phasing out in 2016)

Bachelor of Technology in Operations Management (Phasing out in 2018)

Bachelor of Technology in Quality (Phasing out in 2018)

Master of philosophy in Quality Management

Doctor of Philosophy in Quality Management

The following programmes are being phased out and there will be no new first year in take in 2016

ND: Operations Management

The B.Tech Operations and BTech: Quality will be phasing out and the Advanced Diploma and Post Graduate Diploma is to be introduced in 2019.

### **4. PROGRAMME INFORMATION**

The department offers the Diploma on a full time and part time basis. Both the B-Tech programmes are offered on a part time basis.

The master of philosophy in Quality Management and Doctor of Philosophy in Quality Management. are offered on a 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 20:00. 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

### **Diploma: Management Sciences (Operations Management)**

See General Rules G21B

See General Rules G7

#### 4.1 Entrance requirements for the new qualifications are as follows:

Applicants wishing to enrol 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 in selecting students:

NSC Requirements	NSC Rating Code	Senior Certificate requirements
Compulsory Subjects		Applicants with 20 points or more holding a senior certificate or equivalent qualification will be considered.
English (home) OR English (1 <sup>st</sup> additional)	3 4	
Mathematics OR Mathematics Literacy	3 4	
And two (2) 20 credit subjects (not more than one language)	3	



**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 for mature students (older than 23 years with a minimum of 3 years work experience in a related field) will be provided. 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 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 above. Preference will be given to learners from designated group.

## **4.2 Registration**

- 4.2.1 All courses offered are semester and registration takes place during January and July. Admission to first year of study is in January. See General Rules G3, G4, G5, G6 and G7.
- 4.2.2 The last date for acceptance of late enrolments or transfers from other departments will be four weeks from the commencement of lectures.
- 4.2.3 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)
- 4.2.4 **Changing from old programme to new programme**
- 4.2.5 The N.D. Operations Management will be phased out and students who have not completed the outstanding subjects in terms of the phase out plan, may either transfer to the new qualification, or may complete the outstanding subjects at another institution and may apply for exemption, subject to the provision of the general rules. Students transferring from the incomplete National Diploma Operations Management to the Diploma in Management Sciences (Operations Management) may, on application, be granted credit for subjects passed towards the new qualification.

### **4.3 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.

### **4.4 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 SRI to SRI2

### **6. Experiential Learning**

#### **Refer to Rule G28.**

In order to qualify for the diploma, 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 experiential learning in an approved industrial/commercial organisation.

Details are available in the Departmental Experiential Learning Policy document.

The student is required to complete an official logbook detailing duties 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 onus is on the student/candidate 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

Code	Subjects	Assessment method	Semester	NQF level	Pre-Req	Major Subject
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

## **8. 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 i 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.

## **9. Exclusion rules**

1. 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.

## **10. Subject Content**

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

## **11. RULE DETAILS**

### **ENTRANCE REQUIREMENTS**

See General Rules G7.

### **REGISTRATION**

See General Rules G3, G4, G5 and G6.

## **INSTRUCTIONAL PROGRAMME**

### **National Diploma: Operations Management**

1. The instructional programme shall consist of two levels. Level One,(1) is phased out in 2016. Level Two, and level three (3) will be phased out in 2017 and 2018 respectively.
2. All lectures for this diploma will be conducted on full-time (3 years) & part-time (3 years) basis.
3. Subjects

Operations Management I (Phased out 2016)  
Organisational Effectiveness I (Phased out 2016)  
Operations Management Techniques I(Phased out 2016)  
Operations Management II  
Organisational Effectiveness II  
Operations Management Techniques II  
Operations Management III  
Operations Management Techniques III  
Organisational Effectiveness III  
Manufacturing Technology I(full time phased out 2016)  
Workplace Dynamics (Phased out 2016)  
Operation Management Practice I  
End-User Computing

## **WORK DONE DURING THE YEAR**

In addition to the conditions of General Rule G14 and Departmental Rule CM6 the following conditions will apply:

### **I. Tuition, part-time courses**

There will be approximately 30 weeks of lectures, tutorials, tests and revision.

Subject to size of classes, the weekly programme will be:

Lectures: 3 periods

Tutorials: 1 period

## **PASS REQUIREMENTS**

See General Rule G14/G16/G17.

## **SYLLABI**

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

## **B. TECH: OPERATIONS MANAGEMENT (BTOPMI)**

### **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 Degree 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. This course will be phased out in 2018.

## **ENTRANCE REQUIREMENTS**

The ND: Production/Operations Management or an equivalent three year tertiary qualification.

## **REGISTRATION**

See General Rules G23

## **INSTRUCTIONAL PROGRAMME**

The programme comprises five (5) subjects:

Subject

Operations Management IV (offered in 2018)

Operations Management Techniques IV (offered in 2017)

Financial Planning and Control III (offered in 2018)

Introduction to Marketing Management I (Offered in 2017)

Research Methodology (Semester) (Offered in 2017)

## **DURATION OF INSTRUCTIONAL PROGRAMME**

A minimum of two years 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.

## **B. TECH: QUALITY (BTQALI)**

### **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.. This course will be phased out in 2018.

### **ENTRANCE REQUIREMENTS**

Applicants must be in possession of a Bachelor's degree, National Diploma or equivalent qualification and be in possession of a minimum of two years industrial experience. In addition, a further departmental entrance test will be conducted.

### **REGISTRATION**

New and re-enrolling students register in January.

Second semester re-registration starts in July.

See General Rules G23

### **INSTRUCTIONAL PROGRAMME**

The programme comprises of seven (7) subjects:

Subject

Quality Management Systems	3	(Semester)
Statistical Quality Techniques	3	(Semester)
Quality Planning and Implementation	4	(Semester)
Quality Auditing Techniques	4	(Semester)
Project	4	(Annual)
Continual Quality Improvement	4	(Semester)
Quality Techniques	4	(Semester)

### **DURATION OF INSTRUCTIONAL PROGRAMME**

A minimum of two years 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.

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

Project IV. Assessment for the latter is based on continuous evaluation, a presentation and a mini dissertation

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 in alphabetical order.

## **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 or an equivalent 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 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**

An appropriate Magister Technologiae 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.

## **Diploma in Management Sciences (Operations Management) – Module Content)**

### ***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

## **SYLLABI National Diploma Operations Management [Old Diploma]**

### **OPERATION MANAGEMENT TECHNIQUES 2 (OPMT201)**

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

### **OPERATIONS MANAGEMENT 2 (OPMN201)**

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

### **ORGANISATIONAL EFFECTIVENESS 2 (OGEF202)**

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.

## **END-USER COMPUTING**

### **MODULE 1 (EUCM111) - 1ST SEMESTER**

### **MODULE 2 (EUCM121) 2<sup>ND</sup> SEMESTER**

Introduction. Parts of the computer communication system. Software. Managing computer resources. Managing files. Managing tasks. Multitasking. Multiprogramming. Time-sharing. Multiprocessing. Word processors. Spreadsheets. Database management systems. Presentation graphics. Other software. Copyright. Hardware. Data. Connectivity and the internet. Concept mapping. Practical on computers. Parts of the computer. Word processing using Microsoft Word for windows. Spreadsheets using Microsoft Excel for windows.

Last offering of second year subjects will be in 2017.

### **OPERATION MANAGEMENT TECHNIQUES 3 (OPMT301)**

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

### **OPERATION MANAGEMENT 3 (OPMN301)**

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



### **ORGANISATIONAL EFFECTIVENESS 3 (OGEF302)**

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

### **MANUFACTURING TECHNOLOGY I (MTECI01)**

Overview of manufacturing technology; Material identification & application; Manufacturing methods, techniques & processes; Management of material in process; Cost Containment; Safety & safety legislations; Computers in Manufacturing Technology. Evaluation of materials, parts, methods and equipment.

### **OPERATIONS MANAGEMENT PRACTICE I (OMPRI01)**

Work-Integrated Learning; Research Project; Work Sampling and Presentation.

The last offering of third year subjects will be 2018.

## **B. TECH: OPERATIONS MANAGEMENT (BTOPM1)**

### **OPERATIONS MANAGEMENT IV (OPMN401)**

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.

### **FINANCIAL PLANNING AND CONTROL III (FPLC301)**

Elements of costs in production. Fixed and variable costs. Marginal costs and break-even costs. The concept of contribution and profitability of marginal products. Planning and controlling plant and equipment expenditure. Sources of funds for financing plant and equipment. Long term investment decisions. Budgeting and budgetary control. The relationship between the production manager and the cost accountant. Computer software applications.

### **OPERATIONS MANAGEMENT TECHNIQUES IV (OPMT401) - Subject to change**

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

### **INTRODUCTION TO MARKETING MANAGEMENT I (IMKM101)**

(Marketing Management)

Modern marketing. The market. The product. Distribution structure. Pricing policy and pricing systems. Promotional activities. Planning and evaluation of marketing strategies. Case studies on all the topics.

### **RESEARCH METHODOLOGY (RMPM101)**

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

## **B. TECH: QUALITY (BTQALI)**

### **QUALITY MANAGEMENT SYSTEMS 3 (QUMS301)**

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. Out-sourcing. Risk assessment. Introduction to integration of management system.

### **STATISTICAL QUALITY TECHNIQUES 3 (SQTQ301)**

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 PLANNING AND IMPLEMENTATION 4 (QPIM401)**

Quality gurus. Service quality. Change management. CPA network & gap analysis. Quality awards and excellence models. Service Quality: Strategic quality management. Introduction to “New age gurus” eg. Steven Covey, Clem Sunter & more.

### **QUALITY AUDITING TECHNIQUES 4 (QATE401)**

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

### **PROJECT 4: QUALITY (PROJ401)**

Project Methodology Project Management skills. Presentation of a colloquium. Submission of a 240 hour project.

### **CONTINUAL QUALITY IMPROVEMENT 4 (CQUI401)**

Introduction to Total Quality Management. ISO 9000 and Total Quality Management. Business philosophies. Quality function deployment and quality policy deployment. Business process re-engineering. Quality information systems and quality cost calculation. Surveying customer satisfaction. Teamwork. Motivation. Scenario analysis. Resilience training. Introduction to Six Sigma. Innovation vs optimization vs creativity. Automation. Balance score card.

### **QUALITY TECHNIQUES 4 (QUAT401)**

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.