### DEPARTMENT OF ENVIRONMENTAL HEALTH

**Subject/Module information (Overview of Syllabus)**
The syllabus content is subject to change to accommodate industry changes. Please note: A more detailed syllabus is available at the department or in the study guide that is applicable to a particular subject. On 29 April 2016, the syllabus content was defined as follows:

**A**

**AIR POLLUTION IV (AIP400T)**
*Subject custodian: Department of Environmental Health*

Sources, control methods and apparatus, legislation, measuring of air pollutants, incinerators, climatology, odor control radio-activity, and analysis of air pollutants. (Total tuition time: ± 120 hours)

**AIR QUALITY MANAGEMENT IV (AQM408P)**
*Module custodian: Department of Environmental Health*

Air pollution sources and related emissions of the respective priority industrial processes; respective available options to control air pollution; air pollution measurement equipment/techniques and apply the respective sampling techniques; global warming consequences, strategies and mitigation measures; measurement, interpretation and prescribing of controls and reporting on environmental noise impacts; environmental radiation sources and health effects of radiation and radioactivity. (Total tuition time: ± 200 hours)

**ANATOMY AND PHYSIOLOGY I (AAP105P)**
*Module custodian: Department of Biomedical Sciences*

Overview of anatomy and physiology; organisation of human body; cytology; histology; systems of the body; biochemistry. (Total tuition time: ± 170 hours)

**ANATOMY AND PHYSIOLOGY I (APY140B)**
*Subject custodian: Department of Biomedical Sciences*

Introduction to homeostasis. Basic body topography. Cytology (cell membrane, membrane transport mechanisms, cytoplasm, cell cycle). Histology (epithelial tissues, connective tissues). Dermatology (epidermis, dermis, hair, nails, glands, pigmentation, acid mantle). Osteology (compact bone, cartilage tissue, skeletal macrostructure, classification of joints, synovial joints). Myology (muscle contraction physiology, muscle metabolism, skeletal muscle location and actions). Cardiovascular system (heart, blood vessels, blood pressure, blood tissue, hemostasis). Lymphatic system (lymph vessels, lymphatic organs, lymph flow). Immunology (non-specific resistance mechanisms, specific immunity concepts). (Total tuition time: ± 100 hours)

**C**

**CHEMISTRY I (CHE105P)**
*Module custodian: Department of Chemistry*

Matter; Atoms, molecules, and ions; Basic concepts in chemical bonding; Chemical reactions and stoichiometry; Reactions in aqueous solutions; Acids and bases; Chemistry of the environment; Introductory organic chemistry. (Total tuition time: ± 150 hours)

**COMMUNICATION FOR ACADEMIC PURPOSES I (CAP115P)**
*Module custodian: Department of Applied Languages*

Reading skills. Listening skills. Writing skills. Presentation skills. Research report, citation and referencing. (Total tuition time: ± 80 hours)

**COMMUNICATION FOR OCCUPATIONAL PURPOSES II (COP216P)**
*Module custodian: Department of Applied Languages*

Communication theory; organisational communication; small group communication; employment; internal business documentation; external business documentation; meeting procedure; marketing; stress management/self-management and human relations; multicultural interaction; career-specific vocabulary. (Total tuition time: ± 80 hours)
COMMUNITY DEVELOPMENT I (COD100T) 1 X 3-HOUR PAPER
(Subject custodian: Department of Environmental Health)
Professionalism, ethics, communication, introduction to computers, survival skills, culture, social problems, personality, motivation, emotions and industrial psychology. (Total tuition time: ± 228 hours)

COMMUNITY DEVELOPMENT II (COD200T) 1 X 3-HOUR PAPER
(Subject custodian: Department of Environmental Health)
Didactics, relations, community studies, community profiles, community promotions, environmental psychology. (Total tuition time: ± 228 hours)

COMMUNITY DEVELOPMENT II (CDV206P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)

COMPUTER LITERACY I (ITC125P) 1 X 3-HOUR PAPER
(Module custodian: ICT First Years' and Foundation Unit)

DISASTER MANAGEMENT IV (DMA408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
The nature of emergencies and disasters; pre-disaster activities; emergency response; recovery and sustainable development; shelter and emergency settlements; water supply; sanitation; food safety; vector and pest control; control of communicable diseases and prevention of epidemics; chemical incidents; radiation emergencies; mortuary service and handling of the dead; health promotion and community participation; human resources. (Total tuition time: ± 160 hours)

ENVIRONMENTAL EPIDEMIOLOGY (ENP400T) 1 X 3-HOUR PAPER
(Subject custodian: Department of Environmental Health)
An introduction to ecotoxicology and risk factor analysis. Case studies, practical research project. (Total tuition time: ± 120 hours)

ENVIRONMENTAL EPIDEMIOLOGY III (EEM307P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
Causation and causal inference in epidemiology; measures of risk / health measurement; epidemiological study designs; summarising and displaying public health data (epidemiological data presentation, analysis, and interpretation); ethics in epidemiology; environmental epidemiology; occupational epidemiology; toxicology and epidemiology; social epidemiology; public health surveillance; epidemiology, health policy and planning; disposal of the dead; non - communicable disease. (Total tuition time: ± 170 hours)

ENVIRONMENTAL HEALTH MANAGEMENT AND ADMINISTRATION III (EHM307P)
(Module custodian: Department of Environmental Health)
Introduction to health policy formulation in South Africa; managerial legislation at national, provincial and local government levels; the health system plan of South Africa; stakeholders in the health sector; administrative processes of public administration in practices; office practice management in the workplace; scientific report writing skills in the workplace; project management in the workplace. (Total tuition time: ± 200 hours)

ENVIRONMENTAL MANAGEMENT IV (EMA428P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
ENVIRONMENTAL PLANNING I (EPN100T) 1 X 3-HOUR PAPER
(Subject custodian: Department of Environmental Health)
Planning, building and administrating housing schemes, town planning, building materials and design of buildings. Environmental surveys, impact studies, environmental auditing and basic environmental management, as well as ecology. (Total tuition time: ± 228 hours)

ENVIRONMENTAL POLLUTION: AIR AND NOISE III (EPA300T) 1 X 3-HOUR PAPER
(Subject custodian: Department of Environmental Health)
Air pollution, combustion and its sources and occurrence, engineering control, legislation, monitoring and climatology. Environmental noise – legal requirements, sources, monitoring and control. (Total tuition time: ± 228 hours)

ENVIRONMENTAL POLLUTION: WASTE AND WATER II (EPW200T) 1 X 3-HOUR PAPER
(Subject custodian: Department of Environmental Health)
Water quality management, sources of water pollution, principles of water quality, sewage treatment, water purification, sanitation, waste technology. (Total tuition time: ± 228 hours)

ENVIRONMENTAL POLLUTION: WASTE, WATER AND AIR II (EPL206P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
Definition of waste and its classification; waste generation and composition; waste storage, collection, transportation and disposal; waste reduction and separation; toxic waste, treatment and disposal; management of health care risk waste (infectious waste); water cycle and water sources identification/mapping; water treatment; different uses of water and institutional responsibilities; sources of pollution, management of waste-water and its impact to health and environment; mining and health; types of sanitation systems used in emergencies, rural and urban communities; water, waste and law; monitoring sanitation and water sources; principles of combustion; atmospheric chemical and physical processes in the atmosphere. (Total tuition time: ± 150 hours)

EPIDEMIOLOGY II (EPI210T) 1 X 3-HOUR PAPER
(Subject custodian: Department of Environmental Health)
Physical, chemical and biological agents, pathogenesis, vector control and agents, host environmental exchange and control. (Total tuition time: ± 228 hours)

EPIDEMIOLOGY III (EPI300T) 1 X 3-HOUR PAPER
(Subject custodian: Department of Environmental Health)
Epidemiological study approach and methods, biostatistics. (Total tuition time: ± 228 hours)

FOOD AND MEAT HYGIENE II (FMH206P) 1 X 3-HOUR PAPER AND PRACTICAL
(Module custodian: Department of Environmental Health)
Introduction to food and meat hygiene; food premises design and layout; good hygiene and manufacturing practices; abattoir design and slaughter of animals; slaughter animal anatomy and physiology; meat inspection. Food premises include formal and informal small, medium and large food establishments/premises e.g. restaurants, food factories, premises used for school feeding schemes, prisons, airports, health establishments; support services e.g., distribution (transport) and storage. (Total tuition time: ± 210 hours)

FOOD AND MEAT HYGIENE II (VVH200T) 1 X 3-HOUR PAPER AND PRACTICAL
(Subject custodian: Department of Environmental Health)
Food poisoning, food standards, food legislation and monitoring, the hygienic production and distribution of milk, the preservation of food and general hygiene at food premises. Anatomy of food animals, primary inspection and legislation. (Total tuition time: ± 408 hours)

FOOD AND MEAT HYGIENE III (VVH300T) 1 X 3-HOUR PAPER AND PRACTICAL
(Subject custodian: Department of Environmental Health)
Biochemistry, food poisoning, food preservation, contamination, spoilage and the examination of food, food processing, quality control, food microbiology (laboratory), milk, meat science, abattoir planning and construction, food animals, abattoir practice and legislation, parasitology, pathology, diseases, pathology practical, secondary inspection and laboratory. Practical. (Total tuition time: ± 408 hours)
FOOD HYGIENE IV (FHY410T)  CONTINUOUS ASSESSMENT

(Subject custodian: Department of Environmental Health)

Biochemistry, food poisoning, food preservation, processing, contamination, spoilage and inspection. Food microbiology, food engineering (design and apparatus), planning of food premises, evaluation and laboratory. Practical. (Total tuition time: ± 228 hours)

FOOD PROCESSING AND SAFETY III (FPS307P)  1 X 3-HOUR PAPER AND PRACTICAL

(Module custodian: Department of Environmental Health)

Food security and Nutrition. Quality factors of food and changes in food. Food-borne illnesses and outbreak investigation. Preparation/processing and preservation of food. Assessment of food for suitability, for human consumption. (Total tuition time: ± 220 hours)

FOOD SAFETY MANAGEMENT IV (FSM408P)  CONTINUOUS ASSESSMENT

(Module custodian: Department of Environmental Health)

Requirements of a food safety management system (FSMS); documentation of a food safety management system (FSMS); identification of food safety hazards and hazard analysis; auditing techniques and auditing of food safety management systems; reporting on the outcomes of auditing food safety management systems. (Total tuition time: ± 150 hours)

INFECTIOUS DISEASE EPIDEMIOLOGY II (IDE206P)  1 X 3-HOUR PAPER

(Module custodian: Department of Environmental Health)

Health service delivery in South Africa; foundation of epidemiology; disease observation; prevention and control of communicable disease; disease surveillance and outbreak investigation; expanded immunisation programme in South Africa; parasite & pest vectors (arthropoda, insecta, arachnida); Introduction to communicable diseases and legislation; communicable diseases (viral, bacterial, sexually transmitted, chlamydia, fungal, protozoal); Port Health Services and Global Health. (Total tuition time: ± 180 hours)

INTRODUCTION TO ENVIRONMENTAL HEALTH I (IEV105P)  1 X 3-HOUR PAPER

(Module custodian: Department of Environmental Health)

History of environmental health; sustainable development concept and its application; ethics and professionalism; scientific writing. (Total tuition time: ± 200 hours)

MANAGEMENT PRACTICE III (MPT300T)  1 X 3-HOUR PAPER

(Subject custodian: Department of Environmental Health)

Introduction to administrative practice, dynamics of administrative processes, study of central, regional and local administration, management techniques and office practice. (Total tuition time: ± 228 hours)

MANAGEMENT PRACTICE IV (MAP408P)  1 X 3-HOUR PAPER

(Module custodian: Department of Environmental Health)

Key aspects of criminal law, investigation and procedure in an environmental compliance and enforcement context; principles and guide lines of change management, conflict management and diversity management; environmental health information system; financial and personnel management; the district health system; principles of entrepreneurship. (Total tuition time: ± 150 hours)

MANAGEMENT PRACTICE IV (MPT400B)  1 X 3-HOUR PAPER

(Subject custodian: Department of Environmental Health)

Rendering of health services, advanced financial management, advanced personnel management, public relations and contemporary health matters. (Total tuition time: ± 228 hours)

MICROBIOLOGY I (MBI110T)  1 X 3-HOUR PAPER

(Subject custodian: Department of Biotechnology and Food Technology)

General microbiology, chemical and physical control, environmental microbiology, food microbiology, occupational microbiology and microbiology ecology. Practical microbiological techniques. (Total tuition time: ± 248 hours)
MICROBIOLOGY I (MIB105P)  1 X 3-HOUR PAPER
(Module custodian: Department of Biotechnology and Food Technology)
General microbiology (microbial structure and function, nutrition, growth and control); overview of eukaryotic micro-organisms and viruses; basic microbial taxonomy and main groups of microorganisms; interaction of micro-organisms with their environment (air, soil, water, human beings, other microorganisms); introduction to public health microbiology and epidemiology; food microbiology. (Total tuition time: ± 150 hours)

OCCUPATIONAL HEALTH AND SAFETY II (OHS200T)  1 X 3-HOUR PAPER AND PRACTICAL
(Subject custodian: Department of Environmental Health)
Basic principles of occupational health and safety, legislation, physical, biological and psychological environmental stresses. (Total tuition time: ± 408 hours)

OCCUPATIONAL HEALTH AND SAFETY III (OHS300T)  1 X 3-HOUR PAPER AND PRACTICAL
(Subject custodian: Department of Environmental Health)
Chemical stress factors, ergonomic environmental factors, safety systems, occupational health and safety programmes and statistics. (Total tuition time: ± 408 hours)

OCCUPATIONAL HEALTH AND SAFETY (PHYSICAL) II (OHS206P)  1 X 3-HOUR PAPER AND PRACTICAL
(Module custodian: Department of Environmental Health)
Occupational safety; approved inspection authorities (AIA) for occupational hygiene services; history of health/hygiene; stress factors in the occupational environment; the occupational hygiene process; work place ergonomics; ionising and non-ionising radiation; abnormal pressure; psychological work factors; occupational noise and vibration; thermal factors in the work place; illumination; relevant legislation, codes and standards. (Total tuition time: ± 200 hours)

OCCUPATIONAL HEALTH AND SAFETY (CHEMICAL AND BIOLOGICAL) III (OHS307P)  1 X 3-HOUR PAPER AND PRACTICAL
(Module custodian: Department of Environmental Health)
The occupational hygiene process; occupational toxicology; epidemiological aspects and occupational health; hazardous chemical substances in the work place; processes and hazardous chemical substances in the work place; occupational exposure limits; occupational medicine; indoor air quality; health risk assessments; measurement of hazardous chemical substances in the work place; quality aspects of occupational hygiene; occupational hygiene report writing; ethical and professional considerations; relevant legislation and standards as well as biological agents. (Total tuition time: ± 220 hours)

OCCUPATIONAL HEALTH AND SAFETY IV (OHS400T)  1 X 3-HOUR PAPER
(Subject custodian: Department of Environmental Health)
Control and physical, biological, psychological, chemical and ergonomic stresses. Occupational health and safety audit, legislation and management. (Total tuition time: ± 168 hours)

OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT IV (OHS408P)  1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
The occupational hygiene process; health risk assessment; occupational health and safety services and activities; ethics, professionalism, quality; medical surveillance; health risk assessment; occupational hygiene monitoring; occupational health control principles; hierarchy of control; development and testing of control systems; occupational health and safety programmes; occupational health management principles; epidemiological aspect and occupational diseases; AIA facilities; health promotion at work relevant legislation and standards. (Total tuition time: ± 200 hours)

PHYSICS I (PHY105P)  1 X 3-HOUR PAPER
(Module custodian: Department of Physics)
Introduction to physics; basic mathematics for physics; measurements; motion in one dimension; forces and Newton’s laws of motion; work and energy; impulse and momentum; rotational dynamics; fluids; temperature, heat and heat transfer; ideal gas law and kinetic theory; waves and sound; optics; electricity; nuclear physics and radioactivity. (Total tuition time: ± 200 hours)
PHYSICS AND CHEMISTRY: CHEMISTRY I (PCQ10YT) 1 X 3-HOUR PAPER
(Subject custodian: Department of Chemistry)
Chemical comparison and stoichiometry. Solutions, acids, basis and salts, chemical reactions, chemical balance. Electrochemistry and redox theory, inorganic chemistry, organic chemistry, wet chemical analysis, basic instrumental analysis. Practical inorganic chemistry. (Total tuition time: ± 124 hours)

PHYSICS AND CHEMISTRY: PHYSICS I (PCQ10XT) 1 X 3-HOUR PAPER
(Subject custodian: Department of Physics)
Remedial mathematics, units and conversion, vectors and scalar, statics. Kinetics, applied mechanics, density and relative density, pressure thermodynamics, waves, sound, optics. Electricity, magnetism, electromagnetic induction, radioactivity, matter and energy. (Total tuition time: ± 124 hours)

PLANNING FOR BUILT ENVIRONMENT II (PBE206P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
Town planning (aim of city planning, origin of towns and cities, limitations of town planning, the land-use question, the problems that manifest in the city environment, the intra-urban structure, ecological land-use planning, internal structure of the city; housing (concepts of housing and a house, inherent socio-economic challenges, general housing principles in terms of world health organisation, consideration of residential planning, role of ethics in housing development; building science (design of buildings, building plans, building styles, types of finishes of materials, building construction and building materials, foundations, national building regulations act); the role of environmental health practitioners and authorities in town planning, housing and building science. (Total tuition time: ± 150 hours)

RESEARCH METHODOLOGY AND BIOSTATICS II (RMB217P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
Identification of research topic and preparation of pre-proposal; preparation of full proposal; statistical methods (biostatistics, variables, population and sampling, data collection methods, validity, reliability and trustworthiness, data management, analysing and interpreting data; use of statistical software programs e.g. SPSS, Epi-Info. (Total tuition time: ± 140 hours)

RESEARCH METHODOLOGY (RMD100F) CONTINUOUS ASSESSMENT
(Subject custodian: Department of Environmental Health)
Methodology: methods, data collection, reporting, interaction between supervisor and student, writing of research articles. Statistical methods: measurement scales, graphic representation, correlation and regression, arrangement of data testing, hypotheses, variance analysis. (Total tuition time: ± 228 hours)

RESEARCH METHODOLOGY I (REM126P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
Introduction to the scientific research; reasons for research related to environmental health and health services; types of research (basic, applied, quantitative, qualitative, combination of previous); research methods (experimental/ intervention, observational/surveys, exploratory, overt and covert); research tools (library, computers, measuring techniques, statistics, language, human mind); methods of identifying research needs and the criteria for selecting research topics; research ethics, human rights and community participation; steps in a research process - identification of research needs (topics), planning, execution and reporting (research report, articles, posters, presentations); conducting of a literature review and the use of citation and referencing tools e.g., Endnote. (Total tuition time: ± 100 hours)

RESEARCH PROJECT IV (REP408P) CONTINUOUS ASSESSMENT
(Module custodian: Department of Environmental Health)
Finalisation of the research topic and full proposal developed in the previous module (including research tools and ethics approval); execution of research (including literature review) within the parameters of a prepared proposal; writing of research report (prescribed format); writing of a research article based on the requirements of a related scientific journal; preparation of posters for presentation at conferences/seminars/congresses; preparation and presentation of Power Point presentations to conferences/seminars/congresses. (Total tuition time: ± 100 hours)
S

SOCIOLOGY I (SOC105P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
Introduction to sociological concepts. Ethnocentrism and group dynamics. Communication skills. Human development and social psychology. Public participation and consultation processes. (Total tuition time: ± 170 hours)

W

WASTE MANAGEMENT IV (WMA408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
History of solid waste management; South African waste profile; environmental impact of waste; legislation, conventions and international management; classification, analysis and sampling of waste; hierarchy of waste; waste collection and transportation; waste transfer and disposal; role of government and private institutions; resource recovery and waste processing such as re-use, recycling, reduces and composting; waste information systems; waste management plans; hazardous waste management, health care risk waste management, disposal for the diseased animal and the dead; monitoring and analysis of waste generation, storage, collection, storage and disposal in various institutions and sectors; economic impact, business model and marketing on solid waste management in private and public sector. (Total tuition time: ± 210 hours)

WASTE MANAGEMENT IV (WMG400T) 1 X 3-HOUR PAPER
(Subject custodian: Department of Environmental Health)
Sources of waste, composition and analysis, quantification of waste, nuisance, dumping, method for treatment of waste, indicators to determine health risks, techno-economical studies, safety, the health risks of waste to humans, legislation. (Total tuition time: ± 120 hours)

WATER QUALITY AND WASTE WATER MANAGEMENT III (WQW307P) 1 X 3-HOUR PAPER
(Module custodian: Department of Environmental Health)
Principles of water quality management; sources of water supply, gender mainstreaming and protection; water quality control, standards and legislation; water sampling and examination; water safety plans such as blue drop and green drop strategies (waste water); industrial waste water pollution and management; sanitation technologies and gender mainstreaming; water resource and hygiene management; prevention and control of water related diseases using participatory education strategies; sanitary and water inspections in community facilities, ports and harbours. (Total tuition time: ± 250 hours)