

HUMAN KINETICS AND ERGONOMICS (HKE)

Head of Department and Associate Professor

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Human Kinetics and Ergonomics (HKE) is a six-semester subject which may be taken as a major subject for the degrees of BSc, BCom, BJourn and BA. HKE as a major is designed to provide students with an interdisciplinary academic approach to the analysis of performance and human health, in sport, at work and any other domains of life.

The academic base for all three years during the undergraduate degree (HKE 1, HKE 2, HKE 3) involves integrating perspectives from four broad areas of study, namely the biophysical, physiological, perceptual, cognitive / psycho-social domains, and developing an in-depth understanding of human performance and human health. The professional aspects of the programme prepare students for careers or further education in diverse fields including Ergonomics, Sports Science, general health and rehabilitation (Biokinetics).

To major in Human Kinetics and Ergonomics, a candidate is required to obtain credits in the following courses: HKE 1; HKE 2; HKE 3. See Rule S.23.

See the Departmental Web Page <http://www.ru.ac.za/humankineticsandergonomics/> for further details, particularly on the content of courses.

First-year level courses in Human Kinetics and Ergonomics

HKE 1 is comprised of two first-year courses: HKE 101 is held in the first semester, and HKE 102 in the second semester. A sub-minimum mark of 40% is required to progress from HKE 101 to HKE 102. An aggregate mark for the two semesters of at least 50% allows the candidate to receive the two semester credits for HKE 1, provided the candidate obtains

the required sub-minimum in each component. Both credits in HKE 1 are required before a student may register for HKE 2. A wide variety of tutorials and laboratory practicals, during which human responses to varying environmental demands are evaluated, complement the theoretical basis of all these courses. Supplementary examinations are offered in either course, provided that a candidate achieves a minimum standard specified by the Department.

HKE 101

This course introduces the fundamental concepts upon which the interdisciplinary analysis of human movement is based, framed by functional anatomy of the upper extremities and anthropometry modules.

HKE 102

Biomechanical and physiological perspectives are covered, and then integrated with evolutionary and historical evidence to establish an interdisciplinary understanding of "Human Movement".

Second-year level courses in Human Kinetics and Ergonomics

HKE 2 is comprised of two second-year courses: HKE 201 is held in the first semester, and HKE 202 in the second semester. Both credits for HKE 1 are required before registering for HKE 2. A sub-minimum mark of 40% is required to progress from HKE 201 to HKE 202. An aggregate mark for the two semesters of at least 50% allows the candidate to receive the two semester credits for HKE 2, provided the candidate obtains the required sub-minimum in each component. Both credits in HKE 2 are required before a student may register for HKE 3. Participation in a wide variety of laboratory experiences, as well as tutorials form part of all modules of both HKE 2 courses. No supplementary examinations will be offered for either course.

HKE 201

The focus of this course is on the functional anatomy of the vertebral column and trunk, workspace design, and biomechanics.

HKE 202

This course includes neuromuscular physiology and human information processing with respect to human performance under various conditions.

Third-year level courses in Human Kinetics and Ergonomics

HKE 3 is comprised of two third-year courses: HKE 301 is held in the first semester, and HKE 302 in the second semester. Both credits for HKE 2 are required before registering for HKE 3. A sub-minimum mark of 40% is required to progress from HKE 301 to HKE 302. An aggregate mark for the two semesters of at least 50% allows the candidate to receive the two semester credits for HKE 3, provided the candidate obtains the required sub-minimum in each component. Both credits in HKE 3 are required before a student may register for postgraduate (honours) studies in HKE. Participation in a wide variety of laboratory experiences forms part of all modules of both HKE 3 courses. No supplementary examinations will be offered for either course.

HKE 301

This course includes motor learning, exercise physiology, human decision making, work organisation, and environmental ergonomics.

HKE 302

The HKE 302 course focuses on the functional anatomy of the lower extremities, biomechanics of gait and the lower back, human fatigue and shiftwork, as well as ergonomic tool design.

Human Kinetics and Ergonomics Honours

This one-year postgraduate course comprises a seminar block and a research project, complemented by field trips, research seminars and exposition to advanced research. The seminar modules cover the whole range of Human Kinetics and Ergonomics subjects with consideration of theoretical and applied aspects. Modules offered include: 'Research Methods', 'Human Factors Design Methods', 'Work and Exercise Physiology', 'Work-related Musculoskeletal Disorders and Ergonomics Risk Assessment' and 'Biomechanics of the Lower Back and of Human Economy'. The research project is undertaken by the student in consultation with a supervising staff member, to add depth in an area of particular interest. These areas may include physical and mental performance, human responses and human behaviour to different types of tasks (incl. sport activities and lifestyle), as well as environmental influences. Scientific rigour, linked with application skills, is emphasized throughout the course.

Master's and Doctoral degrees

Suitably qualified students are encouraged to pursue research degrees at the MSc and PhD level. These involve preparation of a thesis under the supervision of a member of staff of the Department.

Requirements for these degrees are given in the General Rules.