Acknowledgement

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GENERAL PROFILE OF SUA

Sokoine University of Agriculture (SUA) is a Public University based in Morogoro, Tanzania and was established on 1st July, 1984 by Act of Parliament No. 6. The Act was later repealed by the Universities Act No. 7 of 2005, under which SUA was granted a Charter effective 28th March, 2007. The Charter mandates SUA to engage in training, research, outreach and public services in the general areas of crop and livestock bio-systems, forestry, wildlife and tourism, veterinary sciences, biotechnology, natural, environmental and social sciences, science education, agricultural and bio-systems engineering, food sciences and nutrition, library sciences, rural development and information and communication technologies. The academic and administrative units of the University are comprised of five Colleges, one School, four Directorates, two Bureau and four Centres.

The PhD (AGRoECO) programme shall be hosted and managed by the Department of Crop Science and Horticulture in the College of Agriculture, which is also the largest amongst all academic units.

RATIONALE

In developing countries, conventional agricultural technologies are in many cases beyond the circumstances and socio-economic capabilities of large numbers of resource-poor farmers. As a result, farmers face numerous challenges ranging from poverty, shrinking farm sizes, degraded natural resources, and have, at the same time, to deal with the consequences of climate variability. Agro-ecology: “the science of applying ecological concepts and principles to the design and management of sustainable food systems (Gliessman, 1998)” can contribute towards building resilient production and marketing systems.

This programme is intended to provide an opportunity for candidates to undertake coursework and later conduct research and write a dissertation for the award of a PhD. SUA has been running PhD programmes since its establishment and the institution has sufficient facilities for theoretical and practical training.

PURPOSE OF QUALIFICATION

The purpose of the proposed PhD programme in Agroecology is to develop human resource capacity that can utilize agro-ecological approaches to address the needs of farmers, traders and consumers, by improving farm productivity while increasing resilience to climate change. Emphasis will be on building capability to develop and utilize eco-friendly technologies for the management of soil health, reducing the impact of biotic and abiotic stresses on agricultural productivity and integration of farm bio-systems and households into value chains of agro-ecological products. The programme also puts emphasis on developing skills and mindset change to facilitate the integration of farm bio-systems and households into value chains of agro-ecological products. The programme is therefore intended for persons who shall be able to contribute towards addressing technical as well as social-economic challenges of agriculture using contemporary theoretical knowledge and practical skills related to the science and practice of agro-ecology to design, produce, manage and/or market agro-ecological products from crop and livestock bio-systems.

GENERAL OBJECTIVE OF THE PhD AGRo-ECO PROGRAMME

Develop and strengthen human resources and institutional capacity in impact-oriented training and research in agroecology for increased agricultural production and productivity.

WHO CAN APPLY

Holders of Masters’ degree in the general area of Agriculture, Horticulture, Agronomy, Crop and Soil Sciences, Animal Science, Forestry, General Science, Agricultural Economics, Natural Resource

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Economics, and other biological and social sciences. Applicants holding other qualifications may also be accepted but may be required to take additional remedial courses and relevant examinations. Candidates can apply on full time or part time basis.

PROGRAMME STRUCTURE

Expected Learning Outcomes - By the end of the programme graduates should be able to:

i. Describe advanced concepts of agro-ecology into action to harness natural resources for sustainable agricultural and social-economic development; and

ii. Interpret national and international policies, laws, and conventions on food production and trade of agro-ecological products.

iii. Apply agro-ecological principles in training farmers on production of sustainable inputs and post-harvest management practices;

iv. Design training materials on principles and management practices of agro-ecological landscapes for sustained productivity, environmental health and income; and

v. Publish materials suitable for advisory services to different actors in the agro-ecology value chain;

vi. Integrate agro-ecological knowledge in planning for sustainable natural resources utilization;

vii. Develop research and/or development proposals on agro-ecology;

viii. Apply agro-ecological knowledge in research;

ix. Design blueprints for sustainable management of natural resources in agro-ecological landscapes; and

x. Formulate models for successful production and marketing of agro-ecological products.

Duration: Four years for full time and five years for part time students.

Coursework: Two semesters of coursework shall be completed within two semesters or one academic year at the beginning of the studies. The minimum credit to be earned from course work is 120. Each candidate shall be required to take all core courses and choose at least three other courses, from amongst 17 elective courses, so as to attain a minimum of 60 credits in each semester. All courses shall be offered in modular form and shall emphasize on participatory learning and r and shall comprise a mixture of lectures, practical, individual and group works and hands-on experiences.

Candidates admitted on part time basis must complete the coursework prior to assuming the part time status.

Research: All PhD candidates shall conduct research that shall culminate in the production of a thesis, to be completed in the remaining three academic years.

Award of a PhD: A minimum of 540 credits shall be required for the award of PhD under the programme. Comprising of 120 credits from coursework, 15 credits for development of concept note and 30 credits for full proposal, 240 from research work and 135 credits from a thesis of acceptable standard.

PROGRAMME CONTENT

Core course modules for semester 1:

i. Holistic Systems Thinking and Analysis

ii. Agro-ecology and Sustainable Resource Management

iii. Integrated Crop-livestock-Aquaculture Bio-systems

Core course modules for semester 2:

i. Research Methods and Data Management
ii. Agro-ecosystems and Climate Change
iii. National Laws and International Agreements in Agro-ecology

**Elective course modules:**

i. Application of Innovation Systems in Agricultural and Rural Development
ii. Advances in Conservation Agriculture
iii. Environmental and Natural Resource Economics
iv. Modelling in Agro-ecology
v. Technologies in Agro-ecological Pest Management
vi. Bioenergy Technologies
vii. Agroforestry and Sustainable Livelihoods
viii. Practices and Technologies for Agro-ecological Soil Fertility Management
ix. Social Organization in Agro-ecology
x. Food Safety Standards, Trade Regulations and Certification
xi. Value Chain Analysis and Development
xii. Non-Traditional Agro-Products
xiii. Integrated Watershed Management
xiv. Lobbying and Advocacy for Agro-ecology
xv. Ecological Management of Grazing Animals
xvi. Economics of Agro-ecological Products
xvii. Gender Equity and Power Dynamics in Agro-ecology

**INTERNSHIP**

Each candidate is eligible for an optional internship programme for a period not exceeding six (6) months within the country or abroad, in the 2nd or 3rd year of study. The candidate shall be required to identify a suitable host institution/organization, and submit an acceptable proposal indicating, amongst other things, deliverables from the internship period and the source of funds.

**EXIT LEVELS**

There shall be two main exit levels:

i. A candidate who shall have completed and passed all core courses and the required elective courses successfully shall be eligible for the award of Postgraduate Diploma in Agro-ecology; and

ii. A candidate who shall have successfully completed both the course work and research shall be awarded the PhD Agro-ecology degree.

Successful candidates can either employ themselves or be employed to perform duties in training, research, outreach and advisory services, advocacy and/or marketing in a wide range of agroecology-based public and private entities.

**STAFF PROFILE**

The PhD (AGRo-ECO) is multidisciplinary in nature. The teaching staff shall therefore be drawn from relevant departments within the University and, where appropriate, others invited from outside the University.

**For more information please, contact:**
The Director,
Directorate of Post-graduate Studies, Research, Technology Transfer and Consultancy (DPRTC), Sokoine University of Agriculture, P.O. Box 3151, Morogoro. Tanzania. Tel: +255 23 264 0013, Email: drpgs@sua.ac.tz; More information about SUA and the programme can be obtained at www.sua.ac.tz and follow DPRTC for details on fee structure and application procedures

YOU ARE ALL WELCOME