



National Agriculture Education Accreditation Council

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**Report of the
Accreditation Inspection Committee
(AIC)**

Prof. Dr. Muhammad Kaleem Abbasi

Prof. Dr. Zahir Shah

**Department of Soil Science,
Pir Mehr Ali Shah Arid Agriculture University,
Rawalpindi**

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1. General

1.1 Introduction

The Accreditation Inspection Committee (AIC) constituted by the National Agriculture Education Accreditation Council (NAEAC) for the external assessment of the Degree Programs of B.Sc(Hons) and M.Sc(Hons) offered by the Department of Soil Science and SWC, PMAS Arid Agriculture University, Rawalpindi, visited the Institute on December 9-10, 2009. The Chairman, Dr. Muhammad Ehsan Tusneem, NAEAC welcomed the AIC and faculty members of the PMAS, AAU in the office of the Dean, Faculty of Agriculture and highlighted the aims and objectives of this review process. The AIC then visited the Department of Soil Science and reviewed their programs through interviews with faculty members, students and support staff of the department and visited their research programs including lab and farm facilities and offices.

1.2 Accreditation of Agriculture Education Institutions in Pakistan

In pursuance to its mandate given by the HEC under clause 10 subsections (d) and (1) of the bye-laws of NAEAC, an Accreditation Inspection Committee (AIC) was constituted comprising the following scientists to review the degree programs of Department of Soil Science and SWC of PMAS Arid Agriculture University, Rawalpindi for assessment and accreditation of their degree programs:

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|-----|---|----------|
| i) | Prof. Dr. M. Kalim Abbasi
Professor Soil Science/Dean
Faculty of Agriculture, University of Azad Jammu and Kashmir
Rawalakot, Azad Jammu and Kashmir | Convener |
| ii) | Prof. Dr. Zahir Shah
Department of Soil and Environmental Sciences,
NWFP Agricultural University, Peshawar | Member |

Terms of reference of the committee were:

- To carry out an external assessment of the degree programs of the Department of Soil Science & SWC, PMAS Arid Agriculture University, Rawalpindi for accreditation.
- To synthesize the critical observations recorded on the basis of discussions with the Chairman of the department and interaction with the concerned Dean, the teaching faculty, students, alumni and support staff and visits of the infrastructure of available laboratories, class rooms and field facilities.
- To submit consolidated and concise report to Chairman NAEAC.

The itinerary of accreditation visit is given at Annex-I.

1.3 The University

In 1980, College of Agriculture (known as Barani Agriculture College) was established in Rawalpindi with the objective to impart agricultural education with particular reference to improve agriculture in the vast rain-fed areas of the pothwar region of Punjab. Initially the college commenced the B.Sc Hons degree program in few major disciplines including Soil Science. In 1996, it was elevated to the level of University and named as Pir Mehr Ali Shah, Arid Agriculture University, Rawalpindi through a bill passed by the Punjab Assembly. The main institutions and faculties of the university include Faculty of Crop and Food Sciences, Faculty of Basic Sciences, Faculty of Animal Sciences, Institute of Biochemistry and Biotechnology, Directorate of Advanced Studies, Directorate of Research and Directorate of Quality Enhancement.

1.4 The Department of Soil Science & SWC

The Department of Soil Science and Soil & Water Conservation in the Faculty of Crop & Food Sciences at Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi is a multidisciplinary academic discipline of teaching and research. The Soil Science and Soil &

Water Conservation began as separate department in 1979, which were merged as one Department of Soil Science and Soil & Water Conservation in 1995. The department offers broad array of programs that deals with Soil & Water Conservation, Soil Fertility & Cropping Systems and issues of importance to pothwar region. The department's strength is its ability to seek solutions to problems that require the integration of disciplines and collaboration of researchers and educators.

The Department has thirteen faculty members; 5 Professors, 2 Associate Professors, 3 Assistant Professors and 3 Lecturers. Eleven out of thirteen faculty members are Ph.Ds.

The Department offers undergraduate and post-graduate studies. So far the department has produced 232 B.Sc (Hons), 87 M.Sc (Hons) and 12 Ph.D students. Currently, the department has enrolled 22 Ph.D, 32 M.Sc (Hons) and 41 B.Sc (Hons) students.

Fourteen Research Projects have been completed and eleven research projects are on-going. The faculty members have published 357 research papers in national and international journals including 72 papers in impact factor journals. National and International seminars are regularly organized with a view to exchange knowledge and views.

MISSION

The specific mission of Department of Soil Science is to deliver quality teaching, conduct superior research and extend knowledge for the amelioration of agriculture, the environment and human health and well being leading to self-sufficiency in quality food by reducing losses in crop yields due to soil health problems and develop a sustainable and substantially profitable production system and make the future of Pakistan bright.

VISION

The Department of Soil Science & SWC will be recognized regionally, nationally and internationally for our scholarly work, effective student training. We plan to be among the top three soil science departments in the nation measured by scholarly works per faculty, grant rupees per research faculty, student placement success and other measures.

Section-2 Criterion Wise Analysis

2.1 Strength and Quality of Faculty

The department has twelve regular and one contract faculty members having 1:8 ratio with students. The faculty members are highly qualified as out of 13, 11 are Ph.Ds and 4 have received post doctorate training. The faculty is specialized in diverse disciplines of Soil Sciences including soil and water conservation, soil fertility, soil microbiology, soil mineralogy, soil physics and soil environment.

The teaching loads of faculty of various cadres at the department are 6 credit hours per week for professor, 6 for Associate Professor, 10 for Assistant Professor and 12 for lecturer. They properly and adequately use quizzes, assignments, projects/seminars, mid-term and final exams for students evaluation. All newly inducted faculty members do receive few weeks training to encompass the important aspects of teaching. Faculty development and career plan also in place as majority of faculty members have got Ph.D trainings. However, Post doc numbers are relatively small. Faculty members and support staff of the department were generally satisfied and believed that the salaries and benefits are reasonable while few believed they are low and some believed they are attractive. Majority of faculty members believed that the working environment in the department is good although a couple of them had different opinion. The faculty stability index is good. Reasonable numbers of awards are won by the faculty in the past including Best University Teacher award, Soil Science Society of Pakistan recognition award, etc. The participation of Faculty members in professional seminars/conferences/workshops is adequate. However, they themselves have not yet organized national or international seminars or conferences in the department. Similarly, none of the faculty members has written a text book and only one has written a chapter in the book and so this area needs immediate attention. Graduate research supervision by the faculty is satisfactory as 12 Ph.D students are supervised so far

by HEC approved Professors/Supervisors. Similarly, 87 M.Sc students are supervised by HEC approved Associate/Assistant Professors.

Faculty members and support staff of the department are moderately to highly satisfied with their jobs. Opportunities for academic progress are adequate. Faculty believes that their degree programs are doing well. However, few believe that Ph.D program must be much stronger than its current state. Faculty uses variety of appropriate instructional procedures to promote analytical and critical thinking among students and encourages questions and queries from students in the class.

2.2 Curriculum Design and Development

The objectives of curriculum are well defined and the contents are rich and well structured as compared to HEC guidelines with little modification suitable for the area (Annexure-III). The curriculum is revised regularly every 4 years under HEC curriculum review program. Both undergraduate and post-graduate students were contacted for their views about the contents of the courses, the method of teaching, use of teaching aids, the conduct of practical and field exposure. The students were satisfied with the course contents and with teaching methodology and facilities available for teaching in the department. New as well as old editions of the required textbooks and reference books are available in the department and main university libraries. The length of a semester is 19 weeks which is within the HEC guidelines. The course files showed that courses are completed within the prescribed period. The course review report is prepared and submitted regularly by each faculty member. The program monitoring systems do exist and practice at the department.

The course registration and withdrawal policy is well spelled out. At least one week is given to students for registration and one week for course withdrawal. The official record showed that course evaluation system is in place and effective. Course files are maintained by all faculty members. However, some deficiencies were observed as samples of best, worst and average answer sheets and samples of quizzes were missing in the course files. Admission policy for each program is well documented and followed (Annexure-II).

We believe that the curriculum followed at the department is generally good to help achieve objectives but this can be made much stronger than its present form. Board of Studies (BS) and Board of Faculty (BF) meetings are regularly held i.e BS meetings are held almost one in a month while BF meetings about two in a year. However, needs intake of stakeholders, outside university scientists including industries.

2.3 Students Support and Progression

Overwhelming number of candidates apply for admission to B.Sc (Hons) degree program in first semester. On average more than 50% applicants are dropped in entry test and more than 50% among those who qualify entry test are dropped in merit. However, applications for admission to B.Sc (Hons) Soil Science in 5th Semester are moderate from 20 to 35. Similarly, number of applications for admission to M.Sc (Hons) and Ph.D programs in Soil Science are moderate and most of them qualify GRE entry test. **Average intake about 20 in B.Sc (Hons) 5th Semester, 18 in M.Sc (Hons) and 6 in Ph.D programs per year.** Yearly percentage of the graduating students with respect to total admission is presented in the following table.

Year	B.Sc (Hons)			M.Sc (Hons)			Ph.D		
	Intake	Graduated	% Graduated	Intake	Graduated	% Graduated	Intake	Graduated	% Graduated
2006/07	16	16	100	10	6	60	4	1	25
2007/08	18	18	100	18	3	17	4	2	50
2008/09	22	22	100	18	7	39	11	1	9

The students drop out percentage is very low. Although the passed out %age in M.Sc (Hons) and Ph.D programs are much lower than the total intake in each year as evidenced from the above table that does not mean that students are dropped. M.Sc (Hons) and Ph.D programs involve research and thesis write up which usually take much longer than speculated period of time. Thus, students intake and passed out numbers do not match.

The need based and merit scholarships to the students are available for outstanding or needy students. However, students were mostly unaware from interest free loans from

various banks. The hostel accommodation is inadequate. One convocation Hall/Auditorium is present in the university which adequately serves the need of the university. The university does possess newly developed indoor games and gym facilities available to students through paid membership but lack the facility of swimming pool. The transport facility is insufficient to cater the need of students. The Department practice tutorial arrangements for students counseling. The university has a dispensary where two full time doctors, one male and one female serve the faculty, students and support staff of the university. There is an internship program in the scheme of studies and is effectively conducted because of the location of University near to NARC and Punjab Govt. research establishments. Students interaction with students is good and the students attitude towards studies is encouraging. Student attendance record is properly maintained. Students believe that their degree programs are useful.

2.4 Infrastructure and Learning Resources

Almost all faculty members have independent offices in the Department; few have been allotted independent offices in the Laboratories as well. The department possesses mainly two post-graduate (each measuring 23 x 35 ft) and one teaching laboratory (measuring 33 x 50 ft), and small additional rooms one each for atomic absorption (10 x 11 ft), soil preparation (10 x 10 ft), plant samples preparation (10 x 10 ft), chemicals (10 x 10 ft) and weighing (10 x 10 ft). In addition, the department also has one laboratory and one office at the research farm. The department has 3 acres of land for research at the university farm but more land is also available if needed for research. The laboratories have basic necessary equipment for research and training of the students and all are properly utilized. The department also has easy access to the university central laboratory where sophisticated equipment including HPLC, GC, Atomic Absorption, C and N analyzer and others are available. **However, the available laboratory staff are not properly trained or qualified for the job. The technical competency of laboratory staff is poor.** Three class rooms (measuring 12 x 17, 16 x 22 and 16 x 22 ft) are available with the department. The lab, office and teaching space with the department is currently sufficient.

Facilities like computer, internet and multimedia are easily available to faculty members. Multimedia facility is easily available for teaching M.Sc and Ph.D classes. Internet facility is available to students even in hostels but **limited number of computers are available for use by the post graduate students.**

There are no proper safety arrangements and no security plan is available in case of emergency. No fire extinguishers have been installed in any laboratory. No first aid kits/facilities provided in the laboratories/department.

2.5 Research and Consultancy activities

The faculty members are involved in various research activities. Fourteen research projects have so far been completed while four research projects are on-going in the department. The university regularly offers Rs. 0.1 million to young researchers on competitive basis. Faculties of this department have won four projects in such competition. The department also has 8 HEC indigenous Ph.D Scholars who brings reasonable amount of funds for research and for department development. The faculty research grant is utilized appropriately.

The faculty members also publish their research outputs in various publications. They have published 357 research papers in national and international journals including 72 in impact factor journals. The following table shows number of publications during the last five years:

Journal	2005	2006	2007	2008	2009
National	15	6	7	5	4
International	3	6	10	19	26
Total	18	12	17	24	30

Most research projects are of three years duration and there does not exist any project which has budget continuously for 5 years. The faculty members have published some manuals but no formal book.

The department has some collaboration with the University of Florida (USA), Zhejiang University China and ICARDA (Syria) as well as with some national organizations including NARC, Islamabad, Soil and Water Conservation Institute Chakwal, Soil Fertility Directorate of Punjab Govt. and others.

There is no regular provision of funds for participation and organization of conferences, seminars in the university budget but the faculty do get funding easily from HEC, particularly during the last few years, for such activities.

There is no regularly advisory services rendered to other organizations but if somebody approaches the department, he/she is entertained by the relevant faculty member. The department has published one brochure “Soil Analysis” in Urdu so far.

2.6 Governance and Leadership

The authority and responsibility of the department are clearly defined. Similarly, the organizational setup and academic infrastructure of the university as a whole are well laid out. The rules regulations are well documented and statutory bodies like syndicate; academic Council, board of faculty, board of studies etc are properly functioning. Although adequate budget is allocated to the department, the finances are centrally controlled through the treasurer office. The financial resources of the university/department are mainly receiving grant from HEC and self-finance study programs. There is no generation of funds from internal resources of the department. The department/university has a placement bureau but has not yet developed Alumni’s association. Annual calendar of activities is not available in the department.

2.7 Innovative Practices

The university has a strong QEC setup that through the students’ and stakeholders’ feedback mechanisms ensures the quality of learning and teaching process. Balance in practical and theory is somehow maintained. Both students-teachers assessment exercises and program assessment mechanisms are operative in the department through QEC of the university.

The AIC members observed that the Department of Soil Science and SWC has made tremendous progress during the last few years. Faculty members have obtained highest qualification and laboratories are renovated and equipped with all necessary equipment. The ground is well set up and there is now no excuse why this department should not initiate innovative teaching and research.

Section-3 SWOT Analysis

3.1 Major Strengths:

- The department has eleven out of thirteen staff members holding PhD degree in various areas of the Soil Science for the degree programs who are qualified with vision and full acquaintance of their respective subjects, having vast knowledge of local agriculture production systems.
- Adequate and well equipped under-graduate and post-graduate research laboratories, un-interrupted power supply with powerful generators. Adequate balance maintained between theory and practical aspects. HEC approved curriculum which is periodically reviewed in the board of study and board of faculty meetings.
- The Faculty has produced more than 100 research publications in HEC recognized and impact factor journals.
- Availability of all necessary text and reference books in the department/university library. Computer and internet facility is also available to faculty and post-graduate students.
- Adequate graduate research infrastructure including research farms and demonstration plots in the university premises.

3.2 Major Weaknesses:

- The teaching faculty needs to develop effective linkages with international and national academic and research institutions. Similarly, linkages with agro-industry (seed, fertilizer) are essential for sharing of knowing and keeping abreast of the current problems and issues of the industry and the farmers.

- Laboratories support staff is not only insufficient but also un-trained for the job. Poor safety arrangements and no fire extinguishers in the labs. Lab manuals need to be followed for lab work and precautionary measures.
- Insufficient Post-Doc and other training opportunities for the faculty as no career development plan is in place.
- Limited number of computers are available for the students. There must be a state of the art computer lab for at least post-graduate students with internet facilities.
- The faculty does not own a green house.

3.3 Major Opportunities:

- Having highly qualified and competent faculty and adequate teaching/research infrastructure; the faculty may develop international/national collaboration resulting in bilateral research projects and faculty exchange programs.
- The discipline of Soil Science and SWC possess diversified specialization. Therefore, curriculum may be reviewed not only in the light of specializations available for the degree programs but also to make it globally/compatible to some extent.
- The faculty may plan to conduct a series of short courses for different target groups such as Extension workers and progressive farmers etc. These short-term training courses (1-2 week duration) could be a reasonable source of income for the department.

3.4 Major Challenges:

- The faculty faces challenges of improvement of teaching-learning process. It involves renovation of class rooms, fixation of multi-media. Teachers may involve the students in class room discussion and use white board and multi-media for delivering the lectures.
- Improvement and up-gradation of the students facilities such as transport, medical, hostel and library etc. financial support for needy students also requires a mechanism.

- The department may devise a mechanism to upgrade the skills and knowledge of technical support staff and a career development plan for the faculty as well as support staff is also required.

Section- 4 Recommendations:

4.1 General Recommendations

- The departmental library needs separate room and sufficient space and new edition of the text books/national Journals must be purchased and maintained at the departmental library.
- The farm land and experiments need improvement by assigning additional job of farm management to a teacher of the department and by recruiting the farm staff.
- Strong system of students' scholarships from the university sources and from the donor agencies/zakat, Baitulmal need to be established.
- Internship at the final year of B.Sc(Hons) degree must be made mandatory and it shall be continued either at farmer's field or in other agriculture related institutions.
- Weekly or bi-monthly seminars for faculty members and post-graduate students should be arranged and must be declared essential for both.
- There should be easy access of teachers to participate and present their research in the conferences and seminars at the national and international level.
- The teachers and post-graduate research collaborations must be developed at national and international level for more meaningful research.
- Fringe benefits need to be provided to the faculty members, including on campus residence, medical facilities and children pick and drop facilities.
- The university should establish a viable and strong placement bureau and alumni association.
- The student's field tours/study tours must be made mandatory for field exposure and first-hand knowledge of the crops and problems especially for the undergraduates. Students' tours to various organizations and institutions are very important in the

learning process and to broaden the vision of the students, the department should consider and promote the activity even across the province.

- The departmental budget is almost negligible, that must be increased and placed at the discretion of the chairman and research supervisors to meet the daily needs. In addition, budget for promotion of research should be included in the departmental budget heads.
- Continuous monitoring/evaluation of the quality of class room teaching i.e. students teachers presence and presentation. Use of latest means of communication i.e. multimedia, students presentation, internet for assignments and involvement of students and teachers in the seminars and conferences on national level must be encouraged.
- Incentives for teachers on Research publications, supervision of M.Phil/Ph.D. students and completion of Research Projects must be introduced.

4.2 Final Recommendations

The AIC recommended Accreditation of the Degree Programs of Department of Soil Science, Soil & Water Conversation, PMAS Arid Agriculture University, Rawalpindi in the “X” category as per HEC rating system i.e. Degree Program having minor shortfalls.

4.3 Signatures of AIC Members

Name and Designation

Signatures

Dr. M. Kalim Abbasi
Professor/Dean Faculty of
Agriculture (UJ&K)
Rawalakot, Azad Kashmir (Convener)

Dr. Zahir Shah
Professor
Department of Soil and
Environmental Sciences, NWFP (Member)
Agricultural University
Peshawar



Dated: December 10, 2009

4.4 Comments and Signatures of Chairman

I agree with the observations and recommendations made by the peer team in this report.

Chairman
Department of Soil Science
PMAS Arid Agriculture University,
Rawalpindi

5.1 Itinerary of Accreditation Visit

Host Institution:	PMAS University of Arid Agriculture Rawalpindi
Institute/ Program:	Department of Soil Science & SWC, B.Sc (Hons) & M.Sc (Hons)-SS & SWC
Review Team:	<ol style="list-style-type: none"> 1. Prof. Dr. M. Kalim Abbasi (Convener) Dean, Faculty of Agriculture, Rawalakot, Azad Kashmir 2. Prof. Dr. Zahir Shah (Member) Department of Soil and Environmental Sciences, NWFP Agricultural University, Peshawar
Institute Coordinator:	Dr. Khalid Saifullah, Associate Professor
NAEAC Resource Person:	Mr. Raja Mehtab Yasin, Admin/ Finance Officer, NAEAC Secretariat
Schedule of Visit:	December 9-10, 2009 (Two Days)

Day 01	Time	Activity	Remarks
	09:00-09:30	Meeting with Dean of the Faculty <ul style="list-style-type: none"> • AIC Convener Explains purpose of the visit • Describes the Program review process 	Convener of AIC
	09:30-10:00	Meeting with Chairman, Department of PBG	All AIC Members
	10:00-11:30	Presentation: Chairman of Department of PBG <ul style="list-style-type: none"> • History of Institute/ Academic Programs • Mission Statement • Program Goals and Objectives • Annual operational budget (08-09) & Human Resources (Total) • Curricula Summary, Revision/Update • Admission and withdrawal policy • Faculty Summary, Qualification/ Experience, Support Staff • Students Feed back • Grading System • Infrastructure Summary, Labs, Greenhouse, Library • Employers Feedback • Alumni Survey • Parents Viewpoint • Question/Answer Session 	All AIC Members
	11:30-13:00	Curriculum Review: Department Coordinator <ul style="list-style-type: none"> • Course files maintenance • Attendance requirements • Examination Record • Session/Semester Record • Evaluation Instruments • Research Projects by faculty / students 	All AIC Members
	13:00-14:00	Zohar Prayers & Lunch	
	14:00-16:00	Infrastructure Visit: Department Coordinator <ul style="list-style-type: none"> • Research & Teaching Labs • Greenhouses & Experimental facilities • Departmental and main Library • Computer Labs, Internet and multimedia facilities • Classrooms number & size with multimedia • Faculty Offices & facilities 	All AIC Members
	16:00-17:00	Meeting of AIC for review and synthesis	

Itinerary of Accreditation Visit

Host Institution:

PMAS University of Arid Agriculture Rawalpindi

Institute/ Program:

Department of Soil Science & SWC, B.Sc (Hons) & M.Sc (Hons)-SS & SWC

Day 02	Time	Activity	Remarks
	09:00-09:30	Meeting with Dean of the Faculty <ul style="list-style-type: none"> • Briefing on yesterday's activities of the visit • Seek guidance/help if required 	All AIC Members
	09:30-11:30	Faculty Meetings: 10-15 minutes for each faculty member <ul style="list-style-type: none"> • Graduation and Higher studies • Personal Background • Area of Interest Vs teaching –learning environment • Perception about the academic programs, Students and peers • Opportunities for professional growth • Research Opportunities • Salary Perception and other incentives • Teaching Load, student- teacher ratio • Meetings with Support Staff 	Individual AIC Member
	11:30-13:00	Classroom Visit: Two classrooms with 45 min. each <ul style="list-style-type: none"> • Students Interviews (B.Sc Hons final & M.Sc Hons) • Students Assessment System (Institute Coordinator) • Students Perception about Teaching-Learning Environment • Students Feedback Mechanism Exists • Senior students views and suggestions to improve teaching-learning environment and facilities 	All AIC Members
	13:00-14:30	SWOC Analysis: faculty /students point of view <ul style="list-style-type: none"> • Major Strengths of Academic Programs • Major Weaknesses of Academic Programs • Major Opportunities for Academic Programs • Major Challenges for Academic Programs 	All AIC Members
	14:30-15:30	Concluding Meeting with Chairman of the Department	
	15:30-16:30	Prayers and Lunch	
	16:30-17:30	Concluding/ Exit meeting with Dean/Exit Meeting <ul style="list-style-type: none"> • Salient Findings of the visit • Formulation of Recommendations • Next Procedure 	
	17:30-19:30	Discussions among the AIC for synthesis & report outline	
	19:30	End of Review Visit	

5.2 Strength and Quality of the Faculty

S. No	Name	Position	Qualification	Experience (Year)	Specialization
1.	Dr. Safdar Ali	Professor	Ph.D	30	Soil & Water Conservation
2.	Dr. M. Saleem Akthar	Professor	Ph.D	27	Soil Mineralogy & Soil Physics
3.	Dr. M. Iqbal Lone	Professor	Ph. D.	35	Soil & Water Quality
4.	Dr. Riaz Ahmed	Professor	Ph. D.	22	Soil Environment
5.	Dr. M. Azhar Naeem	Professor	Ph.D	34	Soil & Water Conservation
6.	Dr. Ghulam Jilani	Asso. Professor	Ph.D	22	Soil Microbiology
7.	Dr. Khalid Saifullah Khan	Asso. Professor	Ph.D	18	Soil Environment
8.	Dr. M. Akmal	Asstt. Professor	Ph.D	04	Soil Environment
9.	Dr. M. Tariq Siddique	Asstt. Professor	Ph.D	23	Soil Fertility & Environment
10	Dr. S. Sohail Ijaz	Asstt. Professor	Ph.D	05	Soil and Water Conservation
11	Mr. Arshad Nawaz	Lecturer	MSc (Hons.)	13	Soil fertility and Organic Farming
12	Mr. Tanveer Iabal	Lecturer	MSc (Hons.)	05	Soil fertility and Organic Farming
13.	Dr. Rifat Hayat	Lecturer	Ph.D	05	Soil Biology/ BNF

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Profile of Support Staff of Soil Science & SWC Department

S. No	Name & Designation	Qualification	Experience (Year)	Major Duties
1.	Mr. Adnan Mahmood Computer Assistant	F.A	05 Years	Computer, Store, Diary and Dispatch
2.	Mr .Naseer Ahmad Lab . Assistant	Metric With Science	24 Years	Laboratory and field
3.	Mr .Fateh Sher Lab . Assistant	Metric With Science	09 Years	Laboratory
4.	Mr. Atta Ullah Lab. Attendant	F.A.	03 Year	Laboratory maintenance
5.	Mr. Muhammad Shafique Lab. Attendant	Middle	11 Years	Laboratory maintenance
6.	Mr. Muhammad Saeed Lab. Attendant	Middle	11 Years	Laboratory maintenance
7.	Mr. Ghulam Muhammad Naib Qasid	Primary	18 Years	Naib Qasid to Chairman
8.	Mr. Hayat Muhammad Naib Qasid	Primary	03 Years	Naib Qasid
9.	Mr. Nasir Bader Baildar	Primary	10 Years	Field Work
10.	Mr. Muhammad Hussain Baildar	Primary	22 Years	Field Work

5.3 Major Courses offered during B. Sc Hons. Degree Program

First semester

Course No.	Course Title	Credit Hours
AGR-301	Basic Agriculture	3(2-2)
AEC-301	Principles of Agricultural Economics	3(3-0)
ENG-301	Functional English	3(3-0)
HORT-301	Introduction to Horticulture	3(2-2)
IS-301/ ET-301	Islamic Studies/ Ethics	2(2-0)
MATH-301/ BIOL-301	Mathematics-I/ Biology-I	3(3-0) 3(2-2)
SS-301	Introduction to Soil Science	3(3-0)

Second semester

Course No.	Course Title	Credit Hours
AGR-302	Summer Crops	3(2-2)
ENG-302	Communication Skills	3(3-0)
FT-302	Introduction to Food Sciences Technology	2(2-0)
HORT-302	Principles of Horticultural Practices	2(1-2)
MATH-302/ BIOL-302	Mathematics-II/ Biology-II	3(3-0) 3(2-2)
RF-302	Introduction to Rangeland & Wildlife Management	3(2-2)
SS-302	Soil and Water Conservation	2(2-0)
SSH-302	Pakistan Studies	2(2-0)

Third semester

Course No.	Course Title	Credit Hours
AGR-401	Winter Crops	3(2-2)
AS-401	Animal Husbandry	3(2-2)
ENT-401	Introductory Entomology	2(1-2)
FT-401	Food Processing and Preservation	3(2-2)
IT-401	Introduction to Information Technology	3(1-4)
PBG-401	Introductory Genetics	2(1-2)
PP-401	Introduction to Plant Pathogens	2(1-2)
RF-401	Introduction to Agro forestry and Watersheds	2(1-2)

Fourth semester

Course No.	Course Title	Credit Hours
AGR-402	Field Crop Physiology	3(2-2)
ENT-402	Applied Entomology	3(2-2)
AEE-402	Introduction to Agricultural Extension Education	3(3-0)
AS-402	Poultry Husbandry	2(1-2)
PBG-402	Introductory Plant Breeding	3(2-2)
PP-402	Introduction to Soil Science & SWC	3(2-2)
STAT-402	Introduction to Statistics	3(3-0)

Fifth semester

Course No.	Course title	Credit Hours
SS-501	Physical Properties of Soils	3(2-2)
SS-503	Chemical Properties of Soils	3(2-2)
SS-505	Instrumentation and Laboratory Techniques	3(0-6)
SS-507	Soil Genesis and Morphology	3(2-2)
SS-509	Introduction to Soil Classification	3(2-2)
AEN-501	Farm Mechanization	2(1-2)
AGRO-501	Arid Zone Agriculture	2(2-0)
SOC-501	Rural Postral Sociology	2(2-0)

Sixth semester

Course No.	Course title	Credit Hours
SS-502	Salt-affected Soils & Their Management	3(2-2)
SS-504	Soil Survey & Land Evaluation	4(3-2)
SS-506	Soil and Water Conservation	3(2-2)
SS-508	Instrumentation and Laboratory Techniques	2(0-4)
SS-510	Wind Erosion and its Control	2(2-0)
SS-512	Introduction to Soil Microbiology	3(2-2)
AEN-502	Conservation Engineering & Water Resources	2(1-2)

Seventh semester

Course No.	Course title	Credit hours
SS-601	Biochemistry of Soil Processes	3(2-2)
SS-603	Soil and Water Pollution	3(2-2)
SS-605	Methods of Soil and Plant Analysis	4(2-4)
SS-607	Nuclear Techniques in Soil Research	3(2-2)
SS-609	Project Planning & Scientific Writing	2(1-2)
STAT-601	Experimental Designs	2(1-2)
MGT-601	Introduction to Agri. Business Management	2(2-0)

Eighth semester

Course No.	Course Title	Credit Hours
SS-602	Internship Including Report writing and Presentation	20(0-40)

Total Credit Hours 160

5.4 POST GRADUATE COURSES (M. SC. (HONS) AGRI. / Ph. D. AGRI)

Course No.	Course title	Credit hours
SS-701	Instrumental Analysis	3(2-2)
SS-702	Soil Fertility Management in Rain-fed Areas	3(2-2)
SS-703	Soil Management & Plant Growth	4(3-2)
SS-704	Fertilizer Technology and Marketing	3(3-0)
SS-705	Soil Classification	3(2-2)
SS-706	Soil Mineralogy	4(3-2)
SS-707	Plant growth and Soil Water Relation	3(2-2)
SS-708	Nutrient Diagnostic Techniques	2(1-2)
SS-709	Fertilizer Technology and Marketing	4(3-2)
SS-710	Soil Salinity and Water Logging	3(3-0)
SS-711	Soil Conditions and Plant Growth	3(3-0)
SS-712	Heavy Metals in Soils and Plants	3(3-0)
SS-713	Advanced Soil Physics	3(3-0)
SS-714	Advanced Soil Fertility	3(2-2)
SS-715	Advanced Soil Microbiology	4(3-2)
SS-716	Advance Soil Chemistry	3(3-0)
SS-717	Edaphology	3(2-2)
SS-719	Special Problem	1(1-0)
SS-720	Seminar	1(1-0)