



NATIONAL SKILLS COMPETENCY TEST (NSCT)

COMPREHENSIVE DOSSIER

Submitted by

Information Technology Centre (ITC)
Sindh Agriculture University, Tando Jam



2026

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Introduction to Information Technology Centre

Introduction to Information Technology Centre:

The Information Technology Centre (ITC) was **established in 2002** at the Sindh Agriculture University Tandojam under a development project approved by the Government of Pakistan.

ITC currently has three buildings and a new mega building under construction, which will be functional from December, 2026.

The ITC offers following programs:

- BS (Information Technology)
- BS (Computer Science)
- BS (Software Engineering)
- MS (Information Technology Track -I, Software and Information System. Track – II Communication Technology)
- MS (Artificial Intelligence)
- PhD (Information Technology)

Vision Statement of University

Transforming into a premier national agriculture university being globally recognized through professional excellence, innovative research, collaborations & linkages and producing socially responsible future leaders.

Mission Statement of University

Committed to contribute towards self-sufficiency and sustainability in agriculture to ensure food security by producing trained manpower, conducting problem-oriented research and establishing effective linkages with the stakeholders.

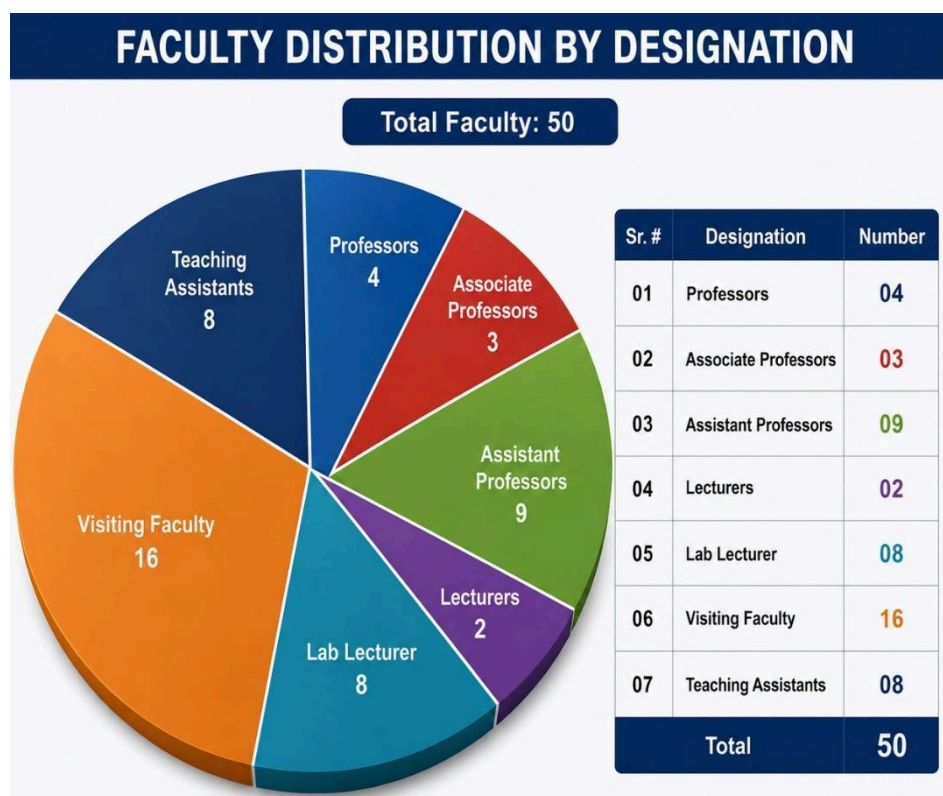
ITC Mission

The mission of the postgraduate program is to prepare students for successful careers in information technology and related advanced disciplines to graduate education with a thorough understanding of domain and experiential learning opportunities to apply gained knowledge for solving real-world problems.

Availability and Adequacy of Qualified Faculty

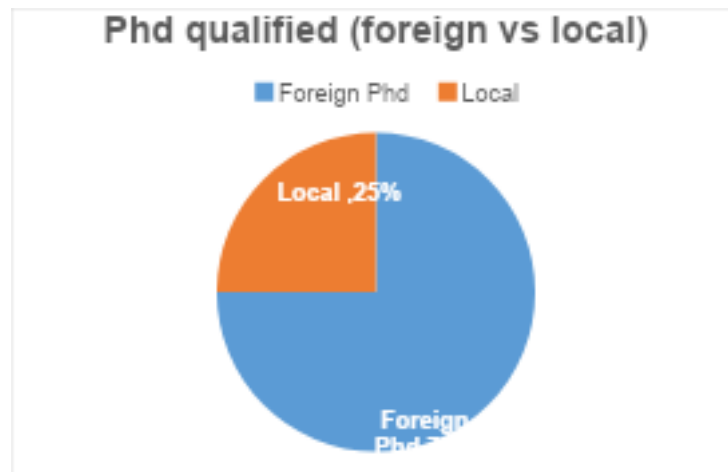
Availability and Adequacy of Qualified Faculty

The Information Technology Centre, Sindh Agriculture University Tandojam currently maintains a core teaching faculty of 50 members across the ranks of Professor, Associate Professor, Assistant Professor, Lecturer, and Teaching/Research Assistant, supplemented by 16 visiting faculty members and 16 teaching assistants/Lab lecturers dedicated to laboratory instruction. The distribution is summarized below:

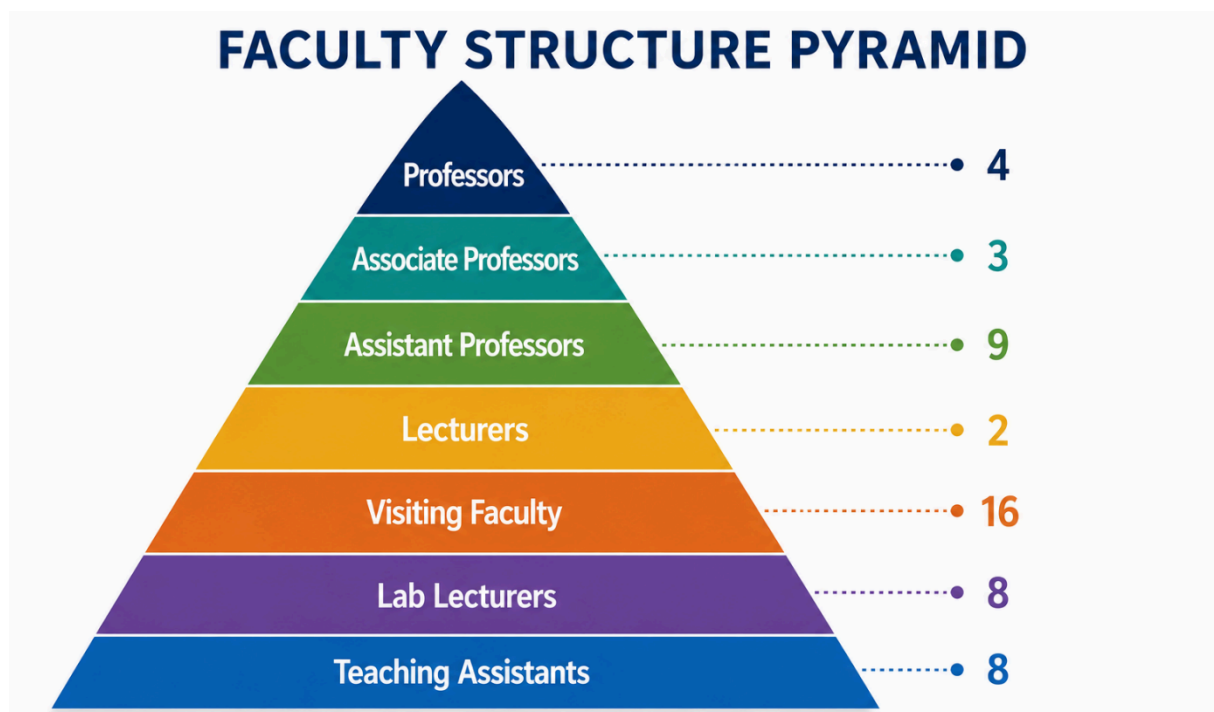


Details of the PhD Faculty Member

The Information Technology Centre (ITC) has **19 regular faculty members**, of whom **12 hold PhD degrees** and **9 are foreign-qualified**. Their academic expertise supports quality teaching, research, curriculum development, industry collaboration, and effective supervision of students.



Balanced Rank Pyramid



Breadth of Specialization Aligned with Modern IT Curricula

The PhD faculty collectively cover a wide and current span of specializations directly relevant to IT/CS programs: Internet of Things and Smart Healthcare, Applied Remote Sensing, Software Engineering, Green Computing, Electronics Engineering, AI-based Educational Technologies, Intelligent Control Systems, IT Security, and Computer Science Theory, supporting diverse elective offerings and thesis supervision across emerging domains.

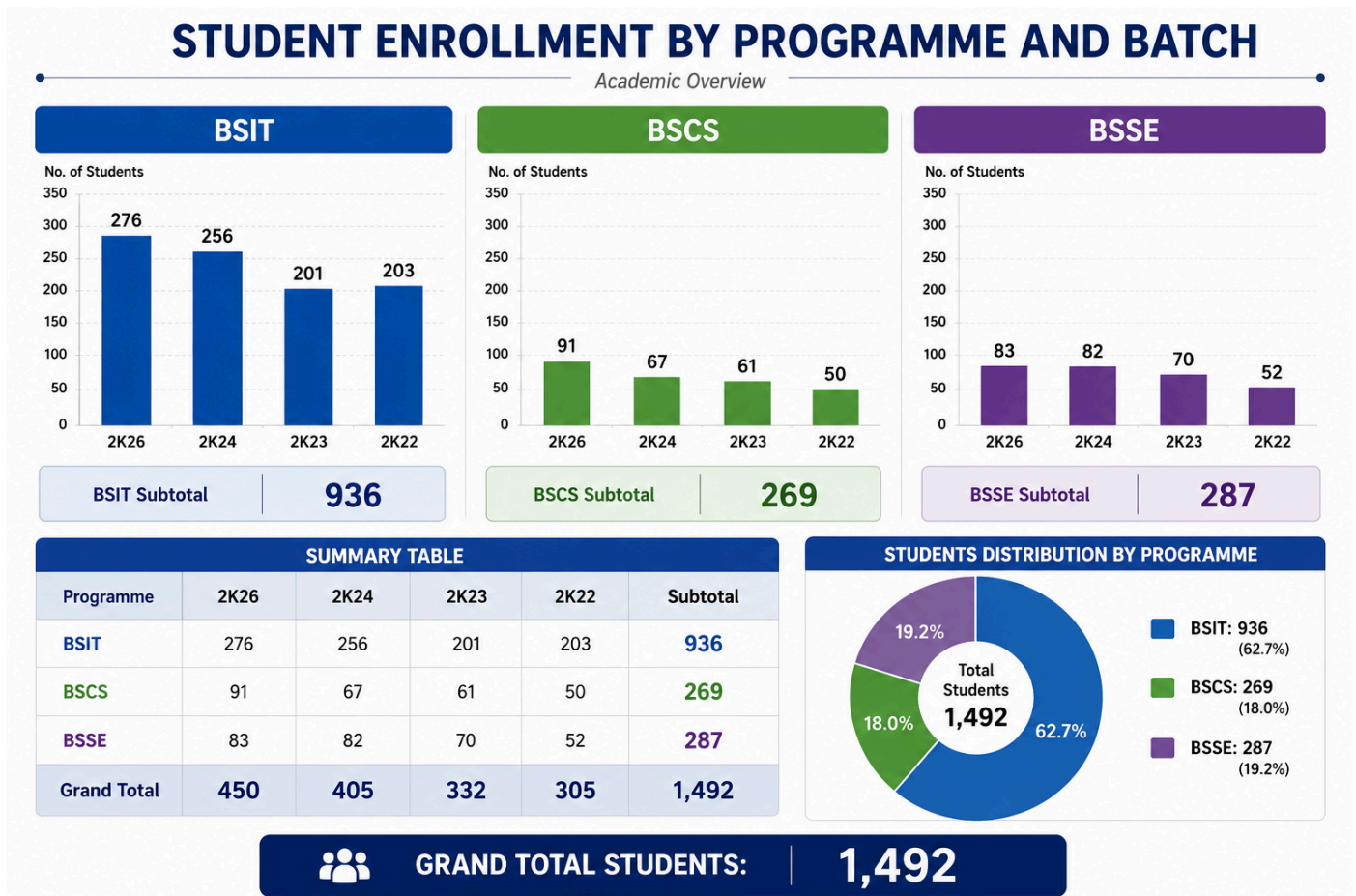
Supporting Evidence: Relevant documentary evidence is attached as **Annexure A**.

Student – Faculty Ratio and Academic Governance Arrangements

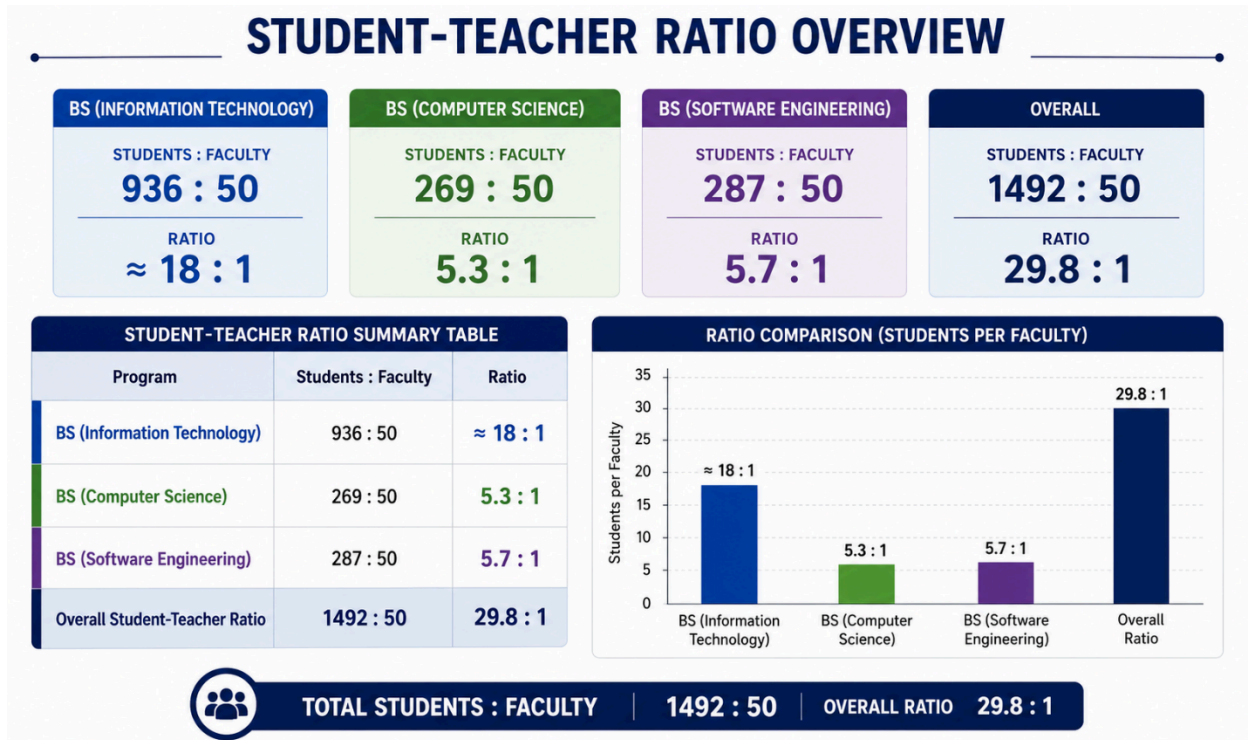
Student – Teacher Ratio Analysis

This report presents an analysis of the student–teacher ratio across the three undergraduate programs: BS Information Technology (BSIT), BS Computer Science (BSCS), and BS Software Engineering (BSSE). During the reporting period, the three programs have a total enrolment of **1,492 students** across four active batches, supported by **50 faculty members** ranging from Professor to Visiting Faculty. The resulting overall student–teacher ratio is approximately **29.8:1**, reflecting an adequate faculty strength to support effective teaching, student mentoring, and academic supervision.

Student Enrolment Overview



Student-Teacher Ratio



Supporting Evidence: Relevant documentary evidence is attached as **Annex B**.

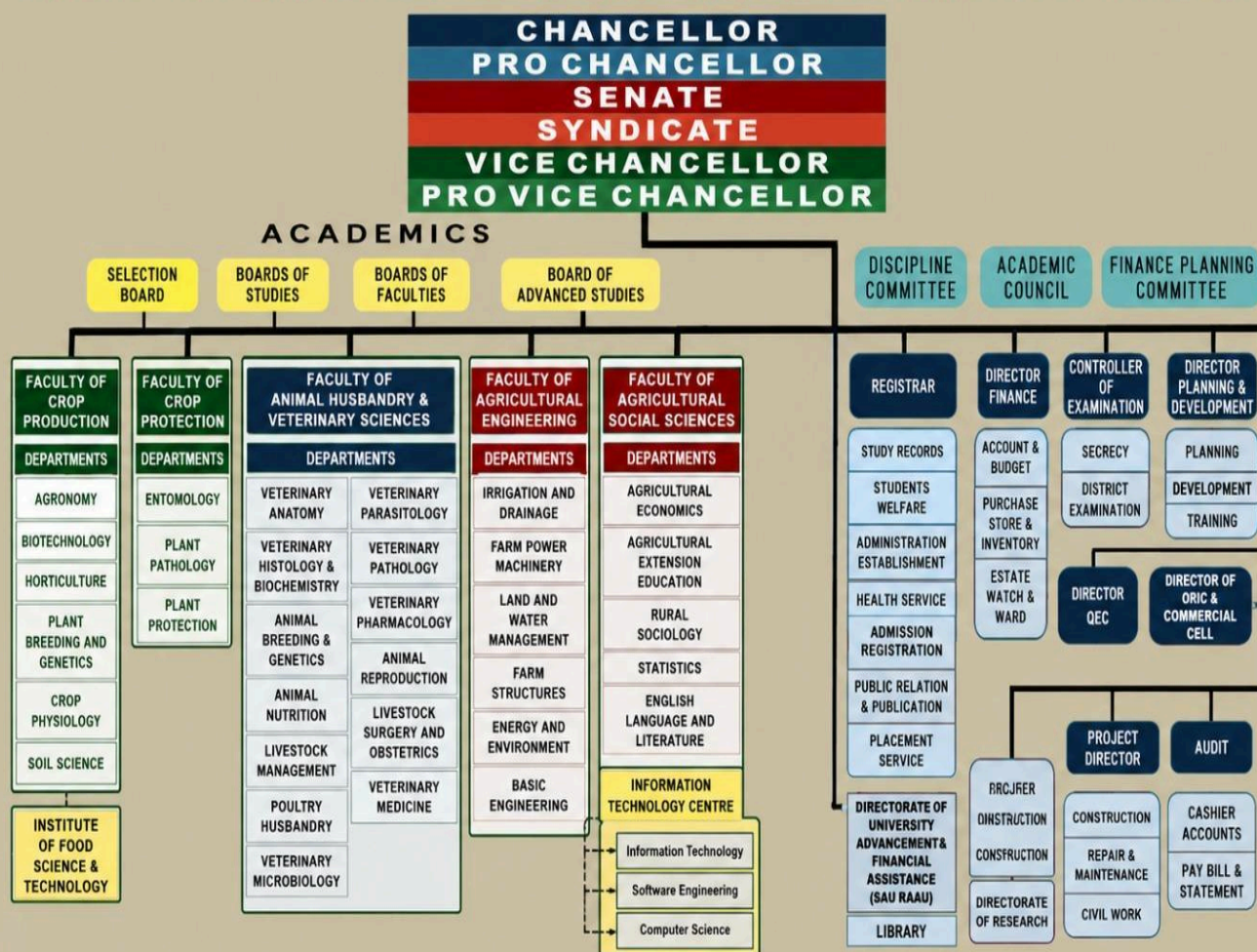
Academic Governance Arrangements

Academic Governance Arrangements

The Information Technology Centre operates within the governance framework established by the Sindh Agriculture University Act, Statutes, NCEAC and HEC policies.

The academic governance structure ensures that academic programs are effectively planned, implemented, monitored, evaluated, and continuously improved through transparent decision-making, quality assurance mechanisms, stakeholder participation, and compliance with national academic standards.

ORGANIZATIONAL CHART OF SINDH AGRICULTURE UNIVERSITY TANDOJAM



Supporting Evidence: Relevant documentary evidence is attached as **Annex C**.

Physical and Digital Infrastructure

Physical and Digital Infrastructure Report

ITC Infrastructure Overview

ITC currently operates across three buildings: the ITC Main Building, the ITC Network Centre Building, and the ITC City Campus Building. The facilities including Classrooms, Computer Labs, Electronics Lab, Library, Faculty Offices, and administrative/support functions are presented at all three locations.

Existing Physical Infrastructure:

Classrooms, Laboratories and Library:- The ITC currently operates 11 computer labs equipped with a combined 180 computers, alongside a dedicated electronics laboratory for undergraduate practical and a postgraduate research laboratory. The ITC Library holds 1,900 books supporting coursework and research.

ITC FACILITIES OVERVIEW (EXISTING / OPERATIONAL)

FACILITY	DETAILS (EXISTING / OPERATIONAL)
 Classrooms	Total Classrooms = 17 • Main Building = 08 • Network Centre Building = 04 • City Campus Building = 05
 Computer Labs	11 labs with 180 computers
 Electronic Labs	Dedicated undergraduate electronics laboratory
 Postgraduate Research Lab	1 dedicated PG research lab
 Library	ITC Library with 1,900 books
 Faculty Offices	Director ITC office, PG-Coordinator office, UG-Coordinator office, 18 teachers' offices
 Support Staff Offices	PA to Director (01), ITC Examination Cell Office

Digital Infrastructure and Facilities

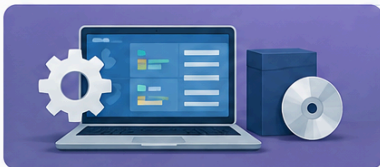
DIGITAL INFRASTRUCTURE AND FACILITIES



- All ITC laboratories are connected via a physical **Local Area Network (LAN)** as well as campus **Smart University (eduroam) Wi-Fi** connectivity.



- Students have access to the **HEC Digital Library** through **PERN**.



- All lab computers have the **latest software** installed to support practical coursework across different subjects.



- **SMART Classroom** facility is also available for students to attend online sessions and classes.

ITC Main Building

The ITC Main Building is the Centre's principal academic facility, having the majority of the computer laboratories, classrooms, faculty offices, and the library.



ITC Main Building

ITC Network Centre Building

The ITC Network Centre Building provides 4 additional classrooms. All classrooms in this Building are equipped with multimedia projectors and umbrella wifi coverage.

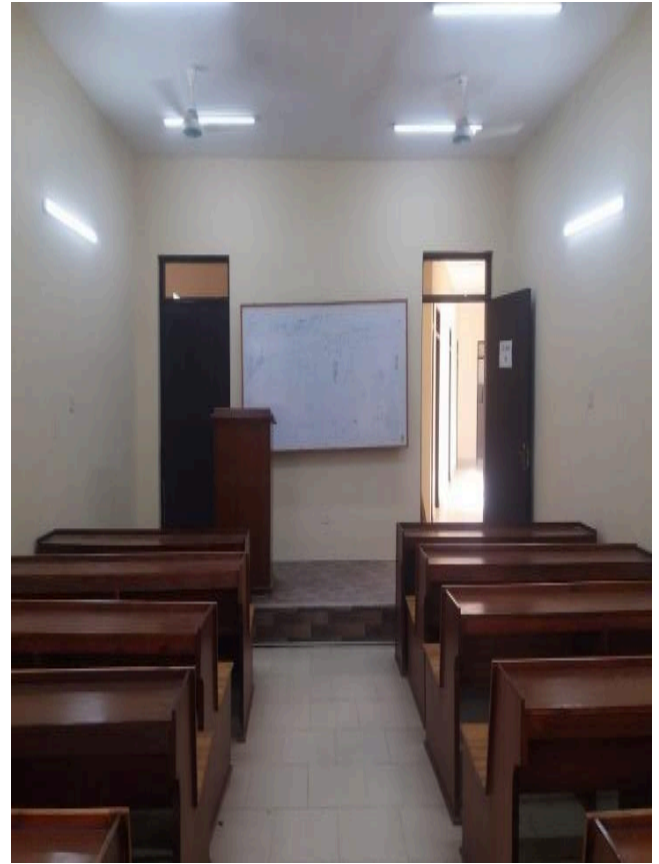


ITC City Campus

The ITC city building contributes a further 5 classrooms, bringing the Centre's total current classroom count to 21.



ITC city building



Classroom, ITC Network Centre Building

ITC Mega Building (Under Construction)

To meet growing enrolment and program expansion needs, ITC is constructing a new Mega Building that will substantially increase the Centre's teaching and laboratory capacity once completed. Planned facilities are summarized below.

FACILITIES – PLANNED CAPACITY (UNDER CONSTRUCTION)

FACILITY	PLANNED CAPACITY (UNDER CONSTRUCTION)
 Classrooms	25
 Computer Labs	12 labs, up to 500-computer capacity
 Power Supply	Fully covered by solar power system
 Electronic Labs	Dedicated undergraduate electronics laboratory
 Postgraduate Research Lab	1 dedicated PG research lab
 Library	New ITC Library
 Faculty Offices	Director ITC office, PG-Coordinator office, UG-Coordinator office, 30 teachers' offices
 Support Staff Offices	PA to Director (01), ITC Examination Cell Office

Photographs of the Mega Building construction are shown below.



ITC Mega Building — construction progress



ITC Mega Building — construction progress



ITC Mega Building — construction progress

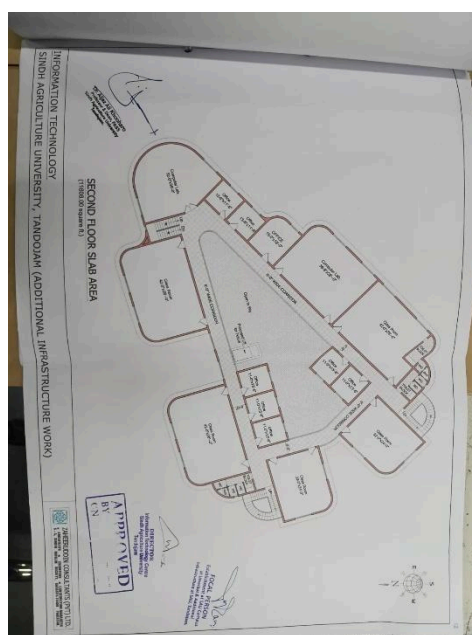


ITC Mega Building — construction progress



ITC Mega Building — construction progress

ITC Mega Building — construction progress



ITC Mega Building Map

ITC Labs, Library, and Project Lab

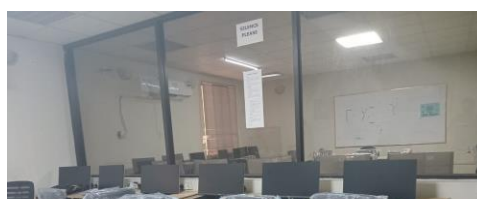
The following facilities directly support students' hands-on learning and research activity.



ITC Library



ITC Computer Lab

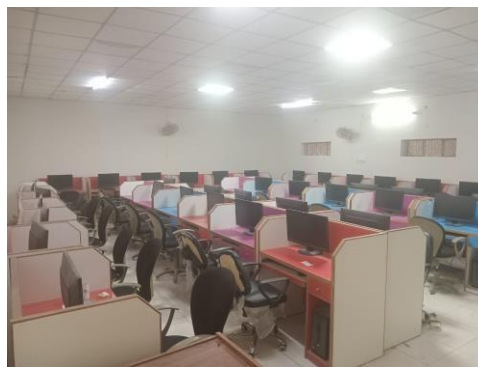


ITC Project Lab

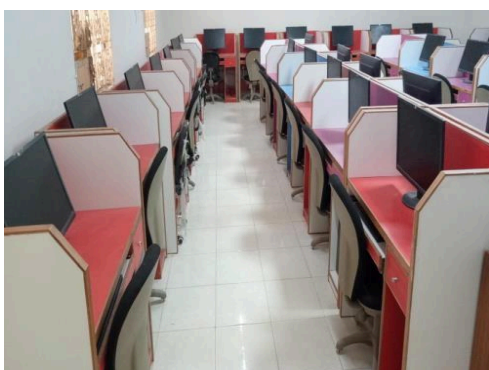


ITC Lab-E

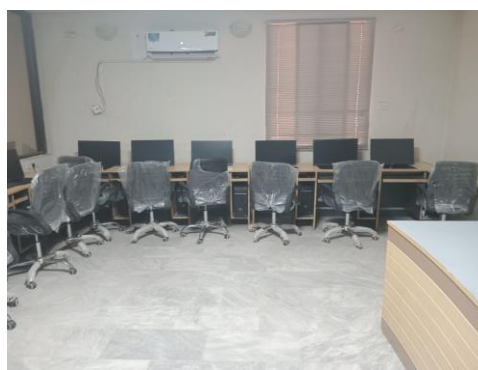
ITC Project Lab



ITC Lab-D



ITC Lab-B



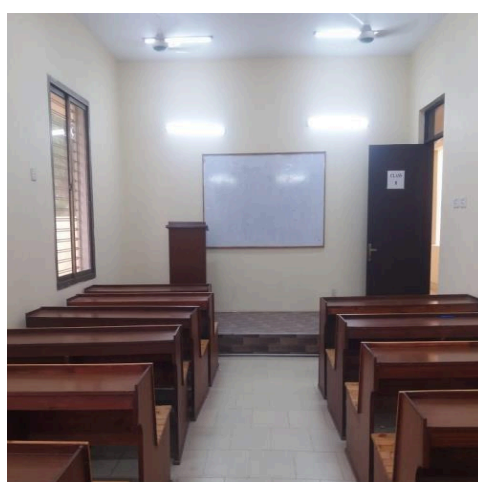
ITC Lab-A



ITC Video Conference Room



ITC main building Classroom

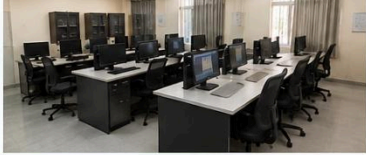


ITC City building Classroom

ITC Network Centre building *Classroom*

Computing Laboratories, Equipment, and Learning Resources

The Information Technology Centre (ITC) provides well-equipped computing laboratories, modern hardware and software, high-speed internet connectivity, and adequate learning resources to effectively support teaching, practical training, research, and student learning across all computing programs.

ITC LABORATORIES – EXISTING / OPERATIONAL			
Sr. No.	Laboratory Type		Details
01 – 05		 Computing Lab A-B-C-D-E	Five computing laboratories dedicated to core computing practical sessions.
06 – 09		 Software Lab A-B-C-D-E	Five software laboratories equipped for programming, development and software engineering practicals.
10		 Electronics Lab	Dedicated undergraduate electronics laboratory.
11		 Postgraduate Lab	One dedicated postgraduate research laboratory for advanced research work.

Equipment Available in Computing Laboratories

ITC EQUIPMENT AND RESOURCES – EXISTING / OPERATIONAL

Sr. #	Equipment / Resource	Purpose / Location	Quantity
1	Desktop Computers (11th Generation Intel Core Processors) 	Installed across all computing laboratories 	180 Units
2	LED Monitors, 24-Inch Paired with desktop workstations for enhanced display clarity 		180 Units
3	Multimedia Projectors Installed in laboratories and the Smart Classroom for lectures and presentations 	Installed in laboratories and the Smart Classroom for lectures and presentations 	16 Units
4	Smart Classroom Interactive digital teaching space with smart board and multimedia integration 	Interactive digital teaching space with smart board and multimedia integration 	1 Facility

Learning Resources

ITC LEARNING RESOURCES – SUPPORTING ACADEMIC EXCELLENCE

In addition to physical infrastructure and hardware, the Information Technology Centre provides a range of learning resources to support the academic and research needs of students and faculty. These resources are intended to complement classroom instruction and laboratory work, fostering an environment of independent learning, research, and skill development.

Key learning resources available at the Centre include the following:



1. Licensed System and Application Software

Including operating systems, programming languages, database management systems, and specialized tools relevant to Information Technology coursework.



2. High-Speed Internet Connectivity

Across all computing laboratories, enabling access to online academic resources, research repositories, and digital libraries.



3. Access to Digital Library and Online Journals

Providing students and faculty with reference materials, research papers, and e-books relevant to their fields of study.



4. Departmental Library Resources

A dedicated collection of textbooks, reference books, and course-related materials available in the departmental library for consultation and borrowing.



5. Learning Management Resources and Course Materials

Including lecture notes, lab manuals, and assignment guidelines, made available to students to support self-paced learning.



6. Technical Support and Lab Assistance

Technical support staff and laboratory assistants available during laboratory hours to assist students with software installation, troubleshooting, and hands-on guidance.



7. Project and Research Support Facilities

Allowing final-year students and faculty members to utilize laboratory resources for thesis work, research projects, and software development initiatives.



These resources empower students and faculty to achieve academic excellence, foster innovation, and contribute meaningfully to research and development in the field of Information Technology.

Compliance with NCEAC and HEC Standards

Compliance with NCEAC and HEC

The Information Technology Centre, Sindh Agriculture University Tandojam, is fully committed to maintaining academic quality in accordance with the standards and policies of the Higher Education Commission (HEC) and the National Computing Education Accreditation Council (NCEAC). The BS Information Technology (BSIT), BS Computer Science (BSCS), and BS Software Engineering (BSSE) programs have been revised and implemented in line with the HEC Undergraduate Education Policy (UEP-2023) and the NCEAC-2023 Curriculum Framework.

The BS Information Technology program has successfully obtained NCEAC accreditation, and blanket approval has also been granted for the COVID-affected Spring 2017 and Spring 2018 batches.

CURRICULUM ALIGNMENT & ACCREDITATION

ITC is committed to academic excellence and quality education in accordance with national standards.

1



BS INFORMATION TECHNOLOGY (BSIT)

The BS Information Technology (BSIT) curriculum has been revised in accordance with the HEC Undergraduate Education Policy (UEP) 2023 and NCEAC 2023.

2



BS COMPUTER SCIENCE (BSCS)

The BS Computer Science (BSCS) curriculum has been revised in accordance with the HEC Undergraduate Education Policy (UEP) 2023 and NCEAC 2023.

3



BS SOFTWARE ENGINEERING (BSSE)

The BS Software Engineering (BSSE) curriculum has been revised in accordance with the HEC Undergraduate Education Policy (UEP) 2023 and NCEAC 2023.

4



BS INFORMATION TECHNOLOGY ACCREDITATION & APPROVAL

The BS Information Technology program has received NCEAC accreditation for the Spring 2019 intake, and subsequent blanket approval was granted for the COVID-affected Spring 2017 and Spring 2018 batches.



HIGHER EDUCATION COMMISSION (HEC)



NATIONAL COMPUTING EDUCATION ACCREDITATION COUNCIL (NCEAC)



OUR COMMITMENT

We continuously review and update our curricula, teaching practices, assessment methods, and quality assurance processes to ensure compliance with HEC and NCEAC requirements and to prepare graduates with the knowledge, skills, and professional competencies required by the computing industry.

Evidence Attached

1. NCEAC Accreditation Letter – BS Information Technology Program.
2. NCEAC Blanket Approval Letter (Spring-2017 & Spring-2018).
3. Revised BSIT Scheme of Studies (HEC UEP-2023 & NCEAC-2023).
4. Revised BSCS Scheme of Studies (HEC UEP-2023 & NCEAC-2023).
5. Revised BSSE Scheme of Studies (HEC UEP-2023 & NCEAC-2023).

Supporting Evidence: Relevant documentary evidence is attached as **Annex D**.

Curriculum Implementation and Learning Outcomes

Curriculum Implementation and Learning Outcomes

Curriculum Adoption Status

Information Technology Centre has adopted the HEC National Curriculum 2023 for all three programs starting with the 2024 intake batch, in line with the recommendation of the National Computing Education Accreditation Council (NCEAC). Batches admitted prior to 2024 continue under the HEC National Curriculum 2017 through to the completion of their degrees. The status is summarized below.

CURRICULUM FRAMEWORK BY PROGRAM AND BATCH		
Program	Batches Covered	Curriculum in Effect
 BS INFORMATION TECHNOLOGY	 2024 and onward	 HEC National Curriculum 2023 (NCEAC-recommended)
	 2022 and 2023 batches	 HEC National Curriculum 2017
 BS COMPUTER SCIENCE	 2024 and onward	 HEC National Curriculum 2023 (NCEAC-recommended)
	 2022 and 2023 batches	 HEC National Curriculum 2017
 BS SOFTWARE ENGINEERING	 2024 and onward	 HEC National Curriculum 2023 (NCEAC-recommended)
	 2022 and 2023 batches	 HEC National Curriculum 2017
 The Information Technology Centre, Sindh Agriculture University Tandojam, is committed to implementing HEC and NCEAC-approved curricula to ensure quality education, industry relevance, and the development of competent computing professionals.		

Basis for Adopting the HEC 2023 Curriculum

The HEC National Curriculum 2023 for computing disciplines was developed by HEC in collaboration with NCEAC, consolidating and updating the previous curricula for Computer Science, Information Technology, Software Engineering, and other computing sub-domains into a single, unified framework aligned with international references such as ACM/IEEE curricular guidelines and the Seoul Accord. ITC's adoption of this curriculum from the 2024 batch reflects direct compliance with the NCEAC recommendation and positions the Centre's programs for continued alignment with national accreditation requirements.

Course Learning Outcomes (CLOs) and Assessment

Under the NCEAC Outcome-Based Education model, each course is assigned Course Learning Outcomes (CLOs) that maps to two to four of the PLOs, with mapping decided by the course instructor/department as per NCEAC guidance. This CLO-to-PLO mapping, together with the associated assessment tools (rubrics, exam-question mapping, lab/project evaluation) and the resulting attainment data, forms the evidence base NCEAC evaluates under Curriculum and Learning Process.

Implementation Roadmap

To move from curriculum adoption to complete, evidence-based OBE implementation, the following phased plan is proposed:

OUTCOME-BASED EDUCATION (OBE) IMPLEMENTATION PLAN		
Phase	Activity	Status
1 	Adoption of HEC 2023 Curriculum for BS(IT), BS(CS) & BS(SE) (2024 batch onward)	 Completed
2 	Formal notification of adoption of the 10 NCEAC prescribed PLOs for each program, aligned with university vision/mission	 In Progress
3 	Course level CLO formulation and CLO to PLO mapping matrix for all courses in each program	 Planned
4 	Development/adoption of assessment tools (rubrics, exam-CLO mapping, project evaluation sheets)	 Planned
5 	First OBE assessment cycle against attainment thresholds	 Planned
 This phased plan will ensure systematic implementation of OBE in line with HEC and NCEAC requirements and promote continuous improvement in teaching, learning and assessment.		

Supporting Evidence: Relevant documentary evidence is attached as **Annex E**.

**Industry Engagement, Internships, and Practical
Trainings**

Industry Engagement

The Information Technology Centre (ITC) has established an **Industry Linkage Committee** comprising **Prof. Dr. Mukhtiar Memon (Convenor)**, **Dr. Muhammad Yaqoob Koondhar (Member)**, and **Dr. Zulfiqar Ahmed Maher (Member)** to strengthen collaboration with industry and bridge the gap between academia and the professional sector. The Committee actively develops and maintains partnerships with software houses, IT companies, banks, government organizations, multinational companies, and other industrial partners through Memoranda of Understanding (MoUs) and collaborative initiatives. It facilitates industrial visits, guest lectures by industry experts, technical seminars, workshops, career counseling sessions, internship placements, collaborative research and development projects, consultancy activities, certification and training programs, hackathons, and job placement opportunities. The Committee also seeks regular feedback from employers and industry professionals to support curriculum review and continuous quality improvement (CQI), ensuring that the academic programs remain aligned with emerging technologies, market demands, and NCEAC accreditation requirements. These initiatives provide students with valuable industry exposure, enhance their technical, communication, teamwork, leadership, and problem-solving skills, and significantly improve their professional competencies, employability, and entrepreneurial capabilities.

Internship

The Information Technology Centre (ITC) has a systematic and transparent mechanism for managing student internships to ensure meaningful industry exposure and practical learning. **Dr. Arif Hussain Magsi, Coordinator Undergraduate**, serves as the **Focal Person for Internships and Scholarships** and coordinates all internship-related activities in collaboration with the Internship Committee. During the **sixth semester**, applications are invited from all students, who are required to indicate three preferred organizations for their internship placement. The applications are reviewed and shortlisted by the Internship Committee based on predefined criteria, including academic performance, student preferences, and the availability of internship opportunities. Official recommendation letters are then issued to the respective organizations, including software houses, IT companies, banks, government departments, research organizations, telecommunication companies, and other relevant industries, to facilitate internship placements.

The Centre maintains strong coordination with industry partners to secure quality internship opportunities that align with students' academic backgrounds and career aspirations. During the internship period, students are encouraged to work on real-world projects under the supervision of both industry mentors and faculty supervisors. Their performance is monitored through internship reports, employer evaluations, presentations, and viva voce examinations, ensuring that the intended learning outcomes are achieved. Feedback received from employers and students is analyzed under the Continuous Quality Improvement (CQI) process to enhance the internship mechanism and strengthen industry-academia collaboration. This structured process ensures transparency, fairness, effective professional training, and the development of students' technical, communication, teamwork, and problem-solving skills, thereby improving their employability and readiness for the computing profession.

Practical Trainings

Practical training is an integral component of the computing programs at the Information Technology Centre (ITC). Students acquire extensive hands-on experience through well-equipped laboratory sessions, programming assignments, mini-projects, Final Year Projects (FYPs), workshops, industrial visits, technical seminars, hackathons, certification programs, and supervised internship training. The curriculum emphasizes project-based and outcome-based learning, enabling students to apply theoretical knowledge to real-world computing problems. Students are encouraged to use modern

software development tools, programming languages, databases, networking platforms, cloud technologies, and version control systems while working on practical assignments and projects. Regular interaction with industry professionals through guest lectures, technical talks, and collaborative activities further enhances their practical exposure. These experiences strengthen students' technical, analytical, problem-solving, teamwork, communication, and project management skills, preparing them to meet the evolving demands of the computing industry and pursue successful professional careers or higher studies.

Supporting Evidence: Relevant documentary evidence is attached as **Annex F**.

Annual Calendar for training, Workshops and Seminars

 INFORMATION TECHNOLOGY CENTRE ANNUAL CALENDAR OF EVENTS Engaging Students • Building Skills • Promoting Innovation • Strengthening Community  ITC Information Technology Centre Sindh Agriculture University Tandojam		
Month	Event / Activity	Objectives
 January	- Orientation Program for New Students - Seminar on Emerging Technologies (AI, Cyber Security, IoT) - Final Year Project Proposal Presentation - Welcome party to new students and farewell party to final year students	- Introduction to ITC facilities, academic policies and student support services - Create awareness of latest technological trends - Review students' project progress - To arrange a formal event to welcome and farewell the students.
 February	- Kashmir Solidarity Day (5 February) - Career Counselling & Higher Education Seminar	- Observe national solidarity and awareness program - Career planning
 March	- Pakistan Day Celebration (23 March) - Programming Competition / Hackathon	- National awareness and patriotic activities - Improve coding and problem-solving skills
 April	Huawei International Certification Seminar	To bring awareness among students about Huawei competition
 May	Internship & Career Readiness Workshop	Prepare students for employment
 July	Faculty Development Workshop	Capacity building for faculty members
 August	- Independence Day Celebration (14 August) - Pakistan Tech Innovation Seminar	- Speech competitions, quiz and cultural activities - Promote innovation and entrepreneurship
 September	- Defence Day Celebration (6 September) - Eid Milad-un-Nabi (ﷺ) Program	- Tribute to national heroes - Seerat Conference, Naat Competition and Quran Recitation
 October	- Cyber Security Awareness Week - Tree Plantation Drive - Inter-University Programming Competition - Teachers Day Celebration	- Awareness regarding digital safety and cyber threats - Promote environmental sustainability - Academic collaboration and healthy competition - To arrange an event to appreciate Teachers of ITC
 November	Sports Week	Several healthy activities for students will be arranged
 December	- Annual Prize Distribution Ceremony - Cultural Day - Quaid e Azam Day Celebration	- Recognition of outstanding students and faculty - To celebrate the culture of Sindh - To celebrate Quaid e Azam Day
 These events are organized to promote academic excellence, professional development, national unity, cultural values, and overall well-being of students and faculty. 		



ITC MAJOR EVENTS AT A GLANCE

Engaging Students • Showcasing Innovation • Building Careers



No.	Event	Date	Primary Focus
1	 AgriTech Career Fair '23 and FYP Projects Display	 2023	 Career engagement and FYP visibility
2	 AgriTech FYP Exhibition and Job Fair 2024	 27 Feb 2024	 Project display, employer interaction and recognition
3	 8th AgriTech FYP Showcase and Job Fair 2025	 25 Feb 2025	 Innovation, start-ups and career linkage
4	 Huawei ICT Competition Roadshow 2024-25	 17 Oct 2024	 Competition awareness and technology exposure
5	 Huawei ICT Competition Roadshow 2025-26	 30 Oct 2025	 Talent development and participation guidance
6	 Annual Talent Show	 September	 Talent show for programming, spelling bee etc are held annually.
7	 Quiz Competition	 April	 Inter Faculty quiz competition is held every year.

 Student Engagement and Exposure

 Industry Interaction and Opportunities

 Innovation, Skills and Competitions

 Building Futures Together

Memorandums of Understanding

The MoUs reviewed show a diverse partnership portfolio, ranging from international universities to private-sector technology companies and government institutions. Collectively, these arrangements provide a framework for research, academic exchange, training, scholarships, internships, networking education and improved access to employment pathways.

 ITC STRATEGIC PARTNERSHIPS AT A GLANCE  Collaborating for Knowledge, Innovation and Growth			
No.	Partner	Main Collaboration Areas	Date / Duration
1 	 Chongqing University of Posts and Telecommunications, China	 Academic and research collaboration; staff and student exchange; seminars, workshops and training	 Approx. 24 Nov 2022; 3 years
2 	 Riara University, Kenya	 Research collaboration; exchange; academic activities; training programmes	 11 Jan 2024; 3 years
3 	 Icreativez Technologies (Pvt.) Limited	 Industry exposure, study visits, seminars, workshops, jobs and summer internships	 24 Apr 2024; 1 year
4 	   Tech Valley Pvt. Ltd., Sindh IT Department and SAU	 Google Career Certificate scholarships through Coursera; up to 100 scholarships	 16 Aug 2024; 1 year
5 	 Huawei Technologies (Pakistan) Pvt. Ltd.	 Huawei ICT Academy, networking education, course delivery and Train-the-Trainer activities	 Executed in 2020; exact date blank
 Enhancing Academic Excellence  Promoting Research and Innovation  Strengthening Industry Linkages  Empowering Students and Faculty  Building Global Partnerships			

 KEY ACHIEVEMENTS AND INSTITUTIONAL VALUE 			
01  Regular FYP exhibitions and job fairs created recurring opportunities for students to demonstrate applied work.	02  The events connected academic programmes with employers, technology companies, government departments and incubation networks.	03  The MoU portfolio broadened ITC's access to international academic collaboration, industry exposure and certified technology training.	04  At least 138 postgraduate learners participated in the two documented hands-on workshops.
05  The institutional email initiative extended digital access across 717 recorded accounts and supported Microsoft 365 adoption.	06  Huawei roadshows provided students with awareness of a structured technology competition and potential global exposure.	07  The Tech Valley arrangement offered a pathway for up to 100 Google Career Certificate scholarships through Coursera.	
★ ★ ★			

Documentary Evidence: Annex F – Industry Linkages, MoUs, Scholarships and Training Activities

**Institutional Capacity to Effectively Offer
Computing-related Degree Programs**

Institutional Capacity to Offer Computing-Related Degree



Programmes

The ITC at Sindh Agriculture University, Tando jam possesses the academic, technical, administrative, and physical capacity required to effectively offer and sustain computing-related degree programmes, including the Bachelor of Science in Information Technology (BSIT), Bachelor of Science in Software Engineering (BSSE), and Bachelor of Science in Computer Science (BSCS). Through its qualified faculty, modern computing infrastructure, industry engagement, research activities, and quality assurance mechanisms, the department is well-positioned to deliver high-quality computing education that meets national and international standards and prepares graduates for careers in academia, industry, entrepreneurship, and public service.

Academic Capacity and Faculty Expertise

A key strength of the department is its highly qualified academic faculty. The department comprises experienced faculty members holding doctoral, postdoctoral, and postgraduate qualifications from reputable universities in China, Denmark, Austria, Malaysia, and Pakistan. This international academic exposure brings diverse perspectives, global best practices, and contemporary knowledge into teaching, research, and curriculum development activities.

Faculty members possess expertise across a wide range of computing disciplines, including Software Engineering, Computer Science, Information Technology, Artificial Intelligence, Data Science,

Cybersecurity, Computer Networks, Cloud Computing, Database Systems, Human-Computer Interaction, Software Quality Assurance, Digital Transformation, and Information Systems. The faculty members are actively engaged in teaching, research, student supervision, curriculum enhancement, and community engagement activities.

The department promotes continuous professional development through participation in national and international conferences, workshops, training programmes, research collaborations, and industry engagement initiatives. This ensures that faculty members remain updated with emerging technologies, modern pedagogical approaches, accreditation requirements, and industry trends.

Laboratory Infrastructure and Technical Resources

The department maintains seven dedicated computing laboratories equipped with modern hardware and software resources to support teaching, learning, research, and practical training activities. These laboratories provide students with extensive opportunities for hands-on learning and experimentation across various computing disciplines.

The laboratories are equipped with high-performance computer systems, servers, networking devices, multimedia facilities, licensed software platforms, programming environments, database management systems, virtualization technologies, and cloud-based learning resources. High-speed internet connectivity is available throughout the department to facilitate access to digital resources, online learning platforms, research databases, and cloud services.

The department continuously upgrades its hardware and software infrastructure to ensure that students gain experience with technologies and tools commonly used in professional computing environments.

Digital Learning Environment

The department has established a comprehensive digital learning ecosystem to support both traditional and technology-enhanced learning. Learning Management Systems (LMS), Virtual Learning Environments (VLE), online collaboration platforms, digital libraries, and video conferencing tools are utilized to facilitate teaching, learning, assessment, communication, and student support activities.

Faculty members employ digital technologies to deliver course materials, conduct assessments, provide feedback, facilitate collaborative learning, and monitor student progress. Students benefit from flexible access to learning resources, recorded lectures, online discussions, digital assignments, and virtual collaboration opportunities.

The department is committed to further strengthening its digital learning capabilities in response to emerging educational technologies and evolving pedagogical requirements.

Research and Innovation Capacity

Research and innovation constitute an integral component of the department's academic mission. Faculty members actively participate in research activities addressing contemporary challenges in computing and information technology. Research areas include Artificial Intelligence, Data Science, Cybersecurity, Software Engineering, Cloud Computing, Internet of Things, Digital Health, Smart Agriculture, and Digital Transformation.

Students are encouraged to participate in research projects, innovation competitions, software development initiatives, community-based projects, and entrepreneurial activities. Final-year projects

provide opportunities for students to apply theoretical knowledge to practical problems and contribute innovative solutions to real-world challenges.

The department also promotes interdisciplinary research and collaboration with national and international academic institutions, industry partners, and government organizations.

Industry Engagement and Professional Development

Strong links with industry play an important role in ensuring the relevance and effectiveness of the computing programmes. The department maintains collaborative relationships with software companies, IT organizations, government agencies, professional bodies, and technology service providers.

These partnerships facilitate:

- Student internships
- Industrial visits
- Guest lectures
- Industry-sponsored projects
- Curriculum review and feedback
- Career development activities
- Professional certification opportunities

Industry engagement enables students to gain practical exposure to workplace environments and enhances their employability upon graduation.

Quality Assurance and Academic Governance

The department operates within a well-established quality assurance framework that supports continuous improvement of academic programmes and institutional effectiveness. Academic quality is monitored through curriculum reviews, course evaluations, learning outcome assessments, student feedback mechanisms, faculty performance reviews, and external academic reviews.

Programme performance is evaluated using measurable indicators such as student achievement, retention rates, graduation rates, employer satisfaction, internship outcomes, research productivity, and graduate employability. The department regularly reviews these indicators to identify opportunities for improvement and maintain academic excellence.

Institutional governance structures provide effective oversight of programme planning, resource allocation, academic policies, strategic development, and compliance with accreditation requirements.

ITC Achievements

ITC Faculty Members Achievements in last 10 Years

RESEARCH AND ACADEMIC ACHIEVEMENTS



Some of the notable achievements of the students of the Information Technology Centre, Sindh Agriculture University, Tandojam, are as follows:

- The student of the Information Technology Centre secured Third Position in the Huawei ICT Competition 2025–2026 Global Finals held in Shenzhen, China, bringing international recognition to Sindh Agriculture University and Pakistan.



Syed Sohail Hussain ... • 2nd
Chairperson, Knowledge Streams Pvt...
2d • 🌐

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Had the honour to present the medals to the Pakistan team winning on the global stage in Shenzen. This is a **Huawei** sponsored event that had three stages of completion, local, regional and global. The team from **Sindh Agriculture University Tandojam** and **Mehran University of Engineering and Technology** made it to the global round and won third prize here



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- The students of the Information Technology Centre, Sindh Agriculture University, Tandojam, successfully completed more than 1,000 Google Career Certificates in 2026, achieving an outstanding 100% completion rate for the second time in 03 year and securing the top position among all universities in Sindh Province. This remarkable achievement reflects the unwavering commitment, dedication, and academic excellence of both the students and faculty in pursuing internationally recognized professional certifications and fostering industry-relevant skills.

SAU Tops Sindh Universities In Google Certification Program; Sindh Government Unveils Laptop Scheme

By Irfan Ali Khushk

TANDO JAM: Sindh Agriculture University (SAU) Tandojam has emerged as a leader among Sindh's universities by being the first to complete the Google Career Certification Program, supported by the Sindh Government. A total of 150 students participated, including 100 from SAU's main campus and 50 from its Umerkot campus. A ceremony marking this achievement was held at the Dr. AM Shaikh Auditorium, organized by SAU's Information Technology Center.

During his speech, SAU Vice Chancellor Dr. Fateh Marri highlighted the university's dual achievements in agriculture and IT. "Our graduates are making significant contributions on national and international stages, bringing pride to both the university and Pakistan," he said. Dr. Marri emphasized



ment's plan to introduce spe- cates were presented by

The potential students of the Information Technology Centre, Sindh Agriculture University, Tandojam, with the support of the Prime Minister's Youth Skill Development Program (Vouchers), sixty-four (64) students, successfully completed international certifications of high-tech courses, namely Advanced Python Programming & Applications, Python/Django + Angular/React, Full Stack Development and Network Administrator (CISCO).

- The potential students of the Information Technology Centre, Sindh Agriculture University, Tandojam, with the support of the Huawei Academy (08) students, successfully completed Huawei international certifications in Network Track, HCI Track, Cloud Computing track.



Huawei Certification

Sagar Rathore

has successfully completed the Huawei certification requirements and is recognized as a

Basics of Network Layer Protocols Micro Certification



Valid Through: Dec 12, 2026
Certificate No. 03050102000420241213000240

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A handwritten signature in black ink, appearing to be "Sagar Rathore", written over a horizontal line.

CEO

HUAWEI Learning & Certification Services Dept

- The students of the Information Technology Centre also secured Second Position in the **Huawei ICT Competition 2023–2024 Global Finals held in Riyadh, Saudi Arabia**, bringing significant international recognition to Sindh Agriculture University, Tandojam, and Pakistan. This achievement, together with the Third Position secured in the 2025–2026 Global Finals, demonstrates the sustained excellence, technical competence, and global competitiveness of the University's computing students.



- Sindh Agriculture University have strong collaboration with Industries such as Nets International Communication, iCreativez Technologies, GeXTON, Pakistan Software Export Board (G) Limited, HiSha, National Incubation Centre, Hyderabad.
- Sindh Agriculture University have strong International Linkages/research collaboration with Chongqing University of Posts and Telecommunications, China , Riara University, Raila Odinga Wy, Nairobi, Kenya, Kenya, International Islamic University Malaysia, University of Technology, Bahrain, University Putra, Malaysia, ETSSM, Malaysia

- Information Technology Centre, Sindh Agriculture University Tandojam secured 7th position in Ignite Expo in Islamabad, Hyderabad, Pakistan.

لاہور، سرگودھا، ملتان، اسلام آباد اور بیرون ممالک میں سب سے زیادہ پڑھا جانے والا نیوز پیپر

sunshinenewsofficial@gmail.com @roznamasunshinelahore @roznamasunshinelahore

ABC Certified

تصدیق شدہ اشاعت

قریب ایک دن میں تین بار کتب خانوں پر پہنچانے کے لئے ایک ایسی کاپی کی گئی ہے جس میں سب سے زیادہ پڑھا جانے والے اخبارات کی فہرست ہے۔ اس میں سب سے زیادہ پڑھا جانے والے اخبارات کی فہرست ہے۔ اس میں سب سے زیادہ پڑھا جانے والے اخبارات کی فہرست ہے۔

لاہور

DAILY SUNSHINE LAHORE

روزنامہ شمس

ایڈیٹر انچیف
نورین کوثر

ایڈیٹر
شامیر خانزادہ

لاہور

جلد نمبر 06

جمعرات 4 محرم الحرام 1446ھ 11 جولائی 2024ء 28 ہاڑ، صفحات 8 قیمت 15 روپے

شمارہ نمبر 63

نیشنل چیمپئن شپ آف فاسٹل ایئر پرائیجیکٹس 2022-23 میں سندھ زرعی یونیورسٹی ٹنڈو جام کی آئی ٹی سی ٹیم ساتویں پوزیشن حاصل کی

ملکی جامعات کے منتخب 30 کامیاب منصوبوں میں ساتویں نمبر کی پوزیشن حاصل کی، اس پروگرام کا انعقاد



(تحصیل حیدرآباد رپورٹر مصنف احمد ٹالپور) نیشنل چیمپئن شپ آف فاسٹل ایئر پرائیجیکٹس 2022-23 میں سندھ زرعی یونیورسٹی ٹنڈو جام کی آئی ٹی سی ٹیم ساتویں پوزیشن حاصل کی سندھ زرعی یونیورسٹی ٹنڈو جام کی انفارمیشن ٹیکنالوجی سینٹر (آئی ٹی سی) نے نیشنل گراس روٹس آئی ٹی سی ٹی ریسرچ انیشیو کے تحت اسلام آباد میں منعقدہ نیشنل چیمپئن شپ آف فاسٹل ایئر پرائیجیکٹس 2022-23 میں حصہ لیا اور ملکی جامعات کے منتخب 30 کامیاب منصوبوں میں ساتویں نمبر کی پوزیشن حاصل کی، اس پروگرام کا انعقاد آئی جی این آئی ٹی ای اور وزارت انفارمیشن ٹیکنالوجی و ٹیلی کمیونیکیشن نے کیا تھا۔ سندھ زرعی یونیورسٹی کے گریجویٹس نے آئی ٹی سی کے سپروائزر ڈاکٹر محمد یعقوب کوندھر کی نگرانی میں سیف کوندھر اور نمرہ زاہد نے نیشنل چیمپئن شپ آف فاسٹل ایئر پرائیجیکٹس کیلئے مقابلہ کیا اور انہوں نے نمایاں پوزیشن حاصل کی۔ اس چیمپئن شپ آف فاسٹل ایئر پرائیجیکٹس 2022-23 میں پورے ملک سے 180 سے زائد ایچ آئی سی سے رجسٹرڈ یونیورسٹیوں

ٹی سی ٹیم نے صرف اس ممتاز گروپ میں شامل ہوئی بلکہ "ہیلتھ مانیٹرنگ سسٹم فار لائیو اسٹاک بیسڈ آن اے آئی اینڈ آئی او ٹی" کے اپنے پروجیکٹ کے ساتھ ایک متاثر کن 7ویں پوزیشن بھی حاصل کی۔ یہ کامیابی سندھ زرعی یونیورسٹی کی بہترین تدریسی خدمات اور یونیورسٹی کی قابل لیڈر شپ میں ہونے والے غیر معمولی کام کو اجاگر کرتی ہے، جو کہ اپنے گریجویٹس کو جدید خیالات اور تکنیکی ترقیات کو ایک معزز پلیٹ فارم پر پیش کرتی ہے۔ اس موقع پر تقریب کے دوران کیپٹن (ریٹائرڈ) محمد محمود، وفاقی سیکرٹری، وزارت آئی ٹی و ٹیلی کام، اور عدیل اعجاز

شیخ، سی ای او آئی جی این آئی ٹی ای نے کامیاب گریجویٹس اور جامعات کے ذمہ داران میں تعریفی اسناد اور شیلڈز تقسیم کیں، دوسری جانب وائس چانسلر ڈاکٹر فتح مری نے آئی ٹی سی کی پوری ٹیم اور کامیاب گریجویٹس کو اس کامیابی پر مبارکباد پیش کی اور کہا کہ نیشنل چیمپئن شپ آف فاسٹل ایئر پرائیجیکٹس، آئی جی این آئی ٹی ای اور وزارت انفارمیشن ٹیکنالوجی و ٹیلی کمیونیکیشن کی جانب سے جامعات نوجوان محققین اور ٹیکنالوجسٹ کی صلاحیتوں کو ظاہر کرنے کے لیے سرگرمی کا بہتر انعقاد کرنے پر ان کی تعریف کی۔

- Sindh Agriculture University has **IEEE Student Branch, IEEE ComSoc Society and IEEE IES Society.**
- Organized **Three IEEE International Conferences.**
- 1st IEEE Karachi Section Humanitarian Technology Conference 2023 (**IEEE Khi-HTC-23**),

IEEE Karachi Section, SAU TandoJam join hands 1st Humanitarian Technology Conference at Tandojam, Sindh

National and International experts have expressed that revolu-

ogy Conference 2024, held under the auspices of the Information Technology Center of Sindh Agriculture University (SAU), Tandojam, in

Dr. Fateh Marri said that technology has facilitated agriculture among other sectors, including land leveling for crops, farming, weather,

enhance the research, and a 5 percent increase in annual production per acre will significantly increase the country's GDP and It is possible

universities; faculty, and students through research support programs, and grants are also given in this regard. He said that in the field of pro-

ing the students in their ideas and startups.

Dr. Bhawani Shankar Chowdhry, Chair of the IEEE Karachi Section and Distin-



tionary changes have taken place in the world with technology, without artificial intelligence and humanitarian technology in society, progress will be inevitable, while in the future agricultural Research support programs should be promoted to achieve beneficial results of development.

They said while addressing the first two-day International Humanitarian Technol-

collaboration with the Institute of Electrical and Electronics Engineers (IEEE)

water systems, livestock breeding, marketing, and GIS systems. He said there is

to reduce poverty and unemployment by 50 percent.

SM Tariq Rafi, Chair-

duction and research, we are lagging behind developed countries in terms of results,

guished National Professor appreciated the efforts of Sindh Agriculture University for jointly organizing the first humanitarian technology conference in collaboration with the IEEE Karachi Section. He said that IEEE is the world's largest professional forum, which is working for the advancement of technology for mankind, and supporting the expansion of technologies such as agri-tech industry, artificial intelligence, big data, industry 0.4, and other fields of technologies.

Dr Asadullah Shah of the University of International



Karachi Section, Asia Pacific Region 10. Speaking at the event, SAU Vice Chancellor

scope for private sector investment of Rs 400 billion in agriculture, which will



man, Sindh Higher Education Commission (SHEC) Karachi said that SHEC is supporting

but our institutions are also making satisfactory achievements, while we are support-

- 2025 International Conference on Data-Driven Social Change (ICDDSC-2025).
- 2026 International Conference on Data-Driven Social Change (ICDDSC-2026).
- 1st International Research Symposium 2026.



ٹنڈو جام: سندھ زرعی یونیورسٹی میں ڈیٹا ڈرائیون سوشل چینج کے موضوع پر عالمی کانفرنس سے وائیس چانسلر ڈاکٹر الطاف سیال، ڈاکٹر امام الدین کھوسو، ڈاکٹر جوہانس، ڈاکٹر نور زمان جینجی اور دیگر مخاطب ہیں

**1st INTERNATIONAL
RESEARCH SYMPOSIUM 2026**



ٹنڈو جام: سندھ زرعی یونیورسٹی کے وائیس چانسلر ڈاکٹر الطاف علی سیال تیسری ڈیٹا ڈرائیون سوشل چینج کانفرنس سے مخاطب ہیں

خميس 20 فيبروري 2025 ع

6

Daily KOSHISH

ماحولياتي تبديلين ۽ هنگامي حالتن کي منهن ڏيڻ لاءِ اڳواٽ تيار ٿيڻو پوندو: سجاڳ ڌريون



سنڌ زرعي يونيورسٽي ٽنڊي ڄام جي اسٽوڊنٽس ٽيچرس انگيڄمنٽ پروگرام (اسٽيپ) جي ميزباني هيٺ گڏجاڻي

حيدرآباد رپورٽ. عبدالجبار ميمڻ سنڌ زرعي يونيورسٽي ٽنڊي ڄام جي اسٽوڊنٽس ٽيچرس انگيڄمنٽ پروگرام (اسٽيپ) جي ميزباني هيٺ ۽ پرائم منسٽريوٽ پروگرام آئي ٽريل اي جي سهڪار سان انٽرا يونيورسٽي اسپيڇ جا مقابلا منعقد ڪيا ويا، جنهن ۾ مختلف شعبن جي شاگردن ۽ شاگردياڻين سنڌي، اردو ۽ انگريزي ۾ "21 هين صدي ۾ مصنوعي ذهانت ۽ سوشل ميڊيا جو سماج تي اثر" جي عنوان سان تقريرون ڪيون. انهن مقابلي ۾ 35 کان وڌيڪ شاگردن ۽ شاگردياڻين حصو ورتو. اختتام تي تقريب دوران، سنڌي تقريرن ۾ ڪاشف حسين پهرين، گلشن خان ٻي ۽ قمبر علي ٽين پوزيشن حاصل ڪئي، اردو ۾ محمد حسين پهرين، محمد فيصل ٻي ۽ آمن بلوچ ٽين پوزيشن ماڻي، اهڙي طرح انگريزي ۾ ڪوثر پنهور پهرين، ام حبيب ٻي ۽ ڪرتي ڪماري ٽين پوزيشن حاصل ڪئي، ان موقعي تي خطاب ڪندي وائيس چانسلر ڊاڪٽر فتح مري چيو ته مصنوعي ذهانت ۽ سوشل ميڊيا جي هاڪاري استعمال جي ڪري دنيا ان مان فائدو حاصل ڪري رهي آهي، ۽ ان جي ڪمرشيل گنجائش مان به ترقي ڪري رهي آهي. هن چيو ته سنڌريل ملڪ مصنوعي ذهانت، چيٽ جي پي ٽي ۽ رويوٽڪس جهڙين جديد ٽيڪنالاجيز ڏانهن منتقل ٿي رهيا آهن، هن چيو ته اسان جي نوجوانن کي دنيا سان چٽاڀيٽي لاءِ پنهنجي قابليت ۽ صلاحيتن ۾ واڌ ڪرڻي پوندي، فئڪلٽي آف سوشل سائنسز جي ڊين ڊاڪٽر اعجاز علي ڪونهاري چيو ته يونيورسٽي ۾ اسٽيپ جي قيام کانپوءِ تدريسي سان سلهاڙيل صحتمند سرگرمين جا هفتي ۾ ڪيترائي پروگرام منعقد ڪيا ويا، جنهن ۾ ڊاڪٽر محمد يعقوب ڪونڊر ۽ ٻين به خطاب ڪيو. تقريب دوران ڊاڪٽر منير احمد منگريو، ڊاڪٽر ذوالفقار علي مهر، ڊاڪٽر عرفان احمد گالڙ ۽ ٻيا پڻ موجود هئا. وائيس چانسلر ڊاڪٽر فتح مري پوزيشن حاصل ڪندڙ شاگردن ۽ شاگردياڻين کي نقد انعام ۽ تعريف سرٽيفڪيٽ ڏئي نوازيو.



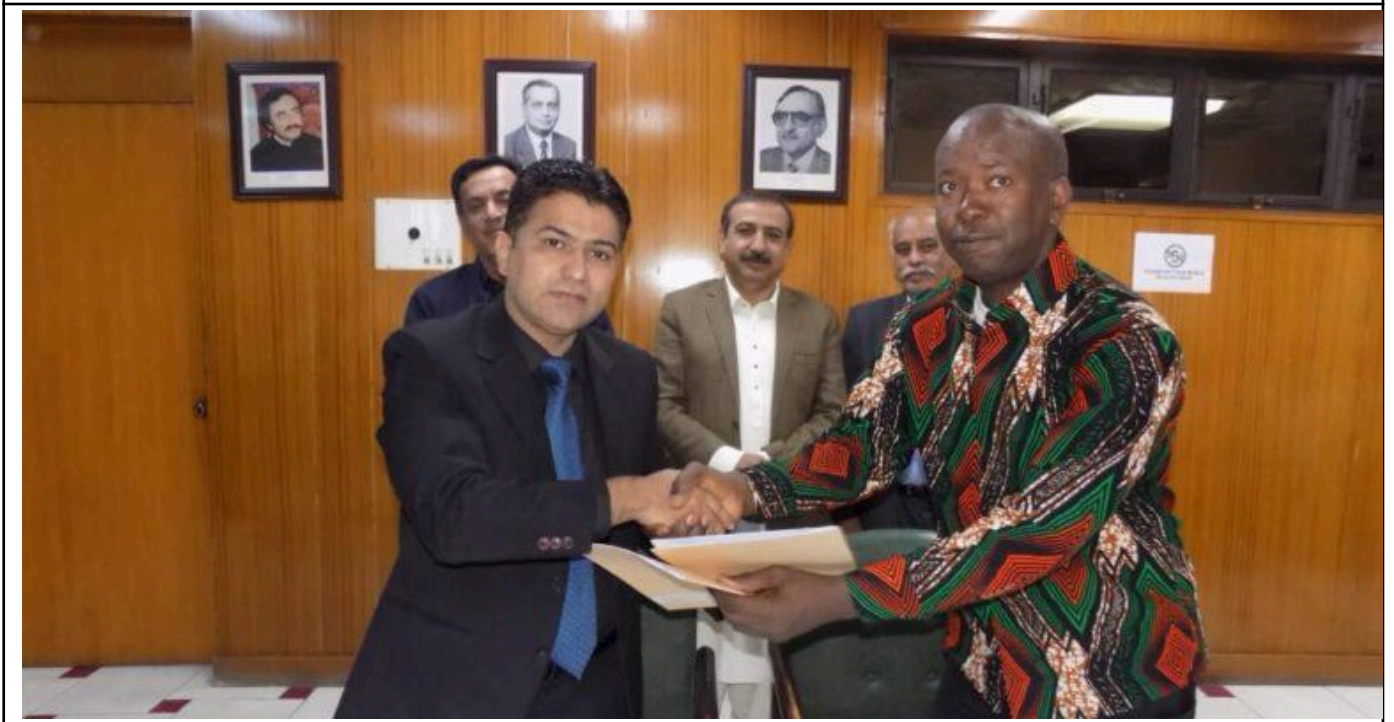
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- The sanctioned number of seats of ITC for admission in undergraduate program is the **third largest after FAHVS and FCPD**. Moreover, Currently, more than 1200 undergraduate and around 150 postgraduate students are registered at ITC.
- There are 19 regular faculty members and 5 visiting faculty at ITC-SAU. Twelve (12) faculty members are PhD qualified, five (05) MS qualified and two are near to end PhD degree.
- The alumni of the Information Technology Centre have established successful careers in prestigious organizations, universities, and technology companies both within Pakistan and internationally.
- Graduates are currently serving in the United States, Malaysia, Saudi Arab, China, and the United Arab Emirates, as well as in leading software companies in Pakistan, including Systems Limited.
- In addition, many alumni hold academic and professional positions at renowned higher education institutions such as **Sindh Madressatul Islam University (SMIU) Karachi, ISRA University Hyderabad, Government College University (GCU) Hyderabad, PMAS-Arid Agriculture University Rawalpindi, and several other universities across Pakistan**. These accomplishments reflect the quality of education, professional competence, and industry readiness of the Centre's graduates.















**Tech Fusion Week 2026 Concludes Successfully at Information Technology Centre,
Sindh Agriculture University Tandojam**



NSCT Deficiencies

NSCT Deficiencies



MAJOR REASONS FOR THE BELOW AVERAGE PERFORMANCE OF OUR STUDENTS IN THE NSCT



Despite the dedication and continuous efforts of the Information Technology Centre (ITC), the performance of our students in the **National Skills Competency Test (NSCT)** was below expectations due to the following key reasons:

01	 OVERLAP OF NSCT WITH UNIVERSITY EXAMINATIONS	The announcement and examination schedule of the NSCT overlapped with the ongoing odd-semester undergraduate examinations at Sindh Agriculture University, Tandojam. As both examinations were conducted during the same period, students prioritized their university examinations, leaving them with very limited time to prepare adequately for the NSCT, which adversely affected their performance.
02	 FIRST-TIME CONDUCT OF THE NSCT BY HEC	As this was the first time the HEC conducted the NSCT, most students were unfamiliar with its format, assessment methodology, and significance. Moreover, the test was scheduled during the university's final examination preparatory break, when many students had already left the campus, limiting their access to guidance and preparatory resources, which adversely affected their readiness and performance.
03	 RURAL AND UNDERPRIVILEGED BACKGROUND OF STUDENTS	A large proportion of our students come from rural and underprivileged areas of Sindh, where access to quality computing education, digital technologies, and modern software tools is often limited. Many students begin their university education with minimal prior exposure to computing concepts and practical digital skills. Despite these challenges, ITC has continuously worked to bridge this digital divide through quality education, practical training, and academic support.
04	 LIMITED PREPARATION TIME	The interval between the announcement of the NSCT and its scheduled examination date was relatively short. This limited timeframe did not provide the university with sufficient opportunity to organize orientation sessions, preparatory workshops, mock assessments, and other academic support activities to familiarize students with the test format and expectations.
05	 COVERAGE OF ADVANCED COURSE CONTENT	At the time the NSCT was conducted, several topics included in the assessment were part of advanced courses scheduled to be taught in the eighth semester of the curriculum. Consequently, many students had not yet studied these subjects before appearing in the NSCT. This mismatch between the test content and the stage of the academic curriculum significantly contributed to their lower performance.



The Information Technology Centre remains committed to continuous improvement, curriculum alignment, early preparation initiatives, and student support programs to ensure better performance in future assessments.



Following are the major reasons for the below average performance of our students are stated as follows:

- Overlap of NSCT with University Examinations:** The most significant factor contributing to the underperformance of our students was the overlap between the announcement and examination schedule of the NSCT and the ongoing odd-semester undergraduate examinations at Sindh Agriculture University, Tandojam. As both examinations were conducted during the same period, students understandably prioritized their university examinations, leaving them with very limited time to prepare adequately for the NSCT. Consequently, their performance in the NSCT was adversely affected despite their academic potential.
- First-Time Conduct of the NSCT by HEC:** As this was the first time the Higher Education Commission (HEC) conducted the National Skills Competency Test (NSCT), most students were unfamiliar with its format, assessment methodology, and significance. Furthermore, the test was scheduled during the university's final examination preparatory break, when many students had already left the campus to prepare for their semester examinations. Consequently, they had limited access to guidance and preparatory resources, which adversely affected their readiness and performance in the NSCT.
- Rural and Underprivileged Background of Students:** A large proportion of our students come from rural and underprivileged areas of Sindh, where access to quality computing education, digital technologies, and modern software tools is often limited. Consequently, many students begin their university education with minimal prior exposure to computing concepts and practical digital skills compared to their counterparts.

from urban institutions. Despite these initial challenges, the Information Technology Centre has consistently made dedicated efforts to bridge this digital divide by providing quality education, practical training, and continuous academic support, enabling students to develop the competencies required for success in the computing field.

4. **Limited Preparation Time:** The interval between the announcement of the National Skills Competency Test (NSCT) and its scheduled examination date was relatively short. This limited timeframe did not provide the university with sufficient opportunity to organize comprehensive orientation sessions, preparatory workshops, mock assessments, and other academic support activities to familiarize students with the test format and expectations.
5. **Coverage of Advanced Course Content:** At the time the National Skills Competency Test (NSCT) was conducted, several topics included in the assessment were part of advanced courses scheduled to be taught in the eighth semester of the curriculum. Consequently, many students had not yet studied these subjects before appearing in the NSCT. This mismatch between the test content and the stage of the academic curriculum significantly contributed to their lower performance.

Strategic Action Plan Matrix (Academic Year 2026–27)

S. No	Identified Area of Improvement	Corrective / Measurable Actions	Responsible Officer(s)	Timeline	Target / Deliverable KPI
1	Curriculum Realignment & Content Sequencing	• Conduct a comprehensive curriculum review to align core computing, IT, CS, SE subjects. • Reposition critical advanced topics from the 8th semester into earlier semesters to ensure coverage before national assessments.	• Director, ITC • Focal Person NSCT • UG Coordinator • Curriculum Review Committee	August – October 2026	Revised and approved course roadmaps for BSIT, BSCS, and BSSE programs.
2	Test Familiarization & Readiness	• Establish regular NSCT Preparatory Classes and specialized orientation workshops.	• UG Coordinator	Ongoing (Commencing August 2026, repeated semester-wise)	Minimum of 2 full-scale mock tests conducted per academic batch prior to

S. No	Identified Area of Improvement	Corrective / Measurable Actions	Responsible Officer(s)	Timeline	Target / Deliverable KPI
		• Introduce mandatory Mock Assessments replicating the HEC test format.	• Relevant Course Faculty • Focal Person NSCT		HEC evaluations.
3	Practical Skill Deficiencies / Rural Exposure Gap	• Introduce mandatory Additional Laboratory Sessions to build hands-on competency in advanced tools. • Conduct localized boot camps focusing on foundational logic and practical coding skills.	• UG Coordinator • Assigned Technical Faculty	October 2026 – May 2027	100% student completion of supplementary laboratory workloads.
4	Student Support & Performance Monitoring	• Implement a formal Faculty Mentoring System where each PhD/MS faculty member oversees a cohort of underprivileged/rural students. • Track individual student progress through diagnostic pre-tests.	• All Regular Faculty • Director, ITC	September 2026 onwards (Bi-weekly tracking)	Mentorship logs maintained; early intervention for students scoring below 60% in mock exams.

S. No	Identified Area of Improvement	Corrective / Measurable Actions	Responsible Officer(s)	Timeline	Target / Deliverable KPI
5	Examination Scheduling Overlaps	Formulate academic and examination calendars in active coordination with HEC schedules to eliminate overlaps with final odd/even semester examinations.	- Director, ITC - UG Coordinator - ITC Examination Cell	Prior to each examination cycle (2026–27)	Zero overlapping days between internal university finals and external national tests.
6	Infrastructure & Digital Resource Utilization	- Shift advanced computing classes into the new Mega Building to exploit modernized network environments. - Maximize student enrollments in industry certifications (Google Career Certifications, Huawei Academy, and NAVTTC high-tech tracks).	- Director, ITC - UG Coordinator - Network Support Team	December 2026 (Transition to new building) / Ongoing for certifications	Integration of new labs; Sustaining >1,000 professional certification completions annually.

Implementation & Monitoring Framework

Administrative Remark on Supervision

To ensure the transparent and stringent execution of this Corrective Action Plan, a Quality Assurance Steering Committee will be chaired by the Director of ITC.

- Progress reports will be submitted quarterly to the Office of the Vice Chancellor, Sindh Agriculture University, Tandojam.
- External assessment frameworks, benchmarked against NCEAC accreditation standards, will validate the internal mock testing results before students qualify for national-level assessments.

Annex A – Faculty Profiles and Qualification Documents

Sr. #	Name	Designation	Area of Specialization	University with Country
01	Dr. Mir Sajjad Hussain Talpur	Professor/Director	Internet of Things, Smart Healthcare	Central South University, China
02	Dr. Mubina	Professor	Applied Remote Sensing	University Putra Malaysia, Malaysia
03	Dr. Mukhtiar Memon	Professor	Software Engineering	University of Innsbruck, Austria
04	Dr Pinial khan	Professor	Green Computing	Central South University, China
05	Dr. Mansoor Hyder Depar	Associate Professor	AR and VR Technologies	Dortmond University, Germany
05	Dr. Kavita Tabassum	Associate Professor	Electronics engineering	Mehran University, Jamshoro
06	Dr. Suhni Abbasi	Associate Professor	Software Engineering (AI-Based Educational Technologies)	Isra university, Hyderabad
07	Dr. Erum Saba	Assistant Professor	Intelligent control systems	Mehran University of Engineering and Technology, Jamshoro
08	Dr. Zulfikar Ahmed Maher	Assistant Professor	Information Technology (Software / Cyber Security)	International Islamic University, Malaysia
09	Dr. Muhammad Yaqoob Koondhar	Assistant Professor	Information Technology	International Islamic University, Malaysia
10	Dr. Ghulam Ali Rahu	Assistant Professor	Computer Software and Theory	School of Computer Science, Shaanxi Normal University, Xian, China,
11	Dr. Arif Hussain	Lecturer	Computer Science	Beijing University of Posts and Telecommunications, Beijing, China

Details of the MS/MPhil/Equivalent Faculty Member

Sr.#	Name	Designation	Area of Specialization	University
01	Ms. Farah Naveen	Assistant Professor	Communication Systems & Networks	Sindh Agriculture University Tandojam
02	Engr. Saima Shaikh	Assistant Professor	Communication System And Network	Sindh Agriculture University Tandojam
03	Ms. Saima Tunio	Assistant Professor	AI and Information Security	Isra University Hyderabad
04	Mr. Suhrab Thaheem	Assistant Professor	Computer Networks	Sindh Agriculture University Tandojam
05	Engr. Irfan Shahani	Assistant Professor	Computer Networks	Muhammad Ali Jinnah University, Karachi
06	Engr. Zeeshan Ahmed	Lecturer	Application Of Machine Learning In Software Engineering	Beijing Institute of Technology, Beijing, China
07	Mr. Noor Nabi	Teaching Assistant	Software Engineering	Sindh Agriculture University Tandojam
08	Mr. Mir Rahib Hussain	Visiting Faculty	Software Engineering	Sindh Agriculture University Tandojam
09	Ms. Rabia Memon	Visiting Faculty	Software Engineering	Sindh Agriculture University Tandojam
10	Ms. Naina Oad	Visiting Faculty	Software Engineering	Sindh Agriculture University Tandojam
11	Mr. Amir Ali Bangash	Visiting Faculty	Software Engineering	Sindh Agriculture University Tandojam
12	Mr. Sufyan	Visiting Faculty	M Sc (Mathematics)	University of Sindh, Jamshoro
13	Mr. Muhammad Waseem	Visiting Faculty	M Sc (Mathematics)	University of Sindh, Jamshoro
14	Ms. Uroosa	Visiting Faculty	M.A (English)	University of Sindh, Jamshoro
15	Mr. Jahanzeb Talpur	Visiting Faculty	M.A (English)	University of Sindh, Jamshoro
16	Ms. Qurat ul Ain	Visiting Faculty	M.Phil. (Rural Development)	Sindh Agriculture University Tandojam

17	Ms. Mariyam Rajput	Visiting Faculty	M.Sc. (Rural Sociology)	Sindh Agriculture University Tandojam
18	Ms. Samreen	Visiting Faculty	M.Sc. (Rural Sociology)	Sindh Agriculture University Tandojam
19	Ms. Farkhanda Warsi	Visiting Faculty	M.A (Pakistan Studies)	University of Sindh, Jamshoro
20	Ms. Asma Laghari	Visiting Faculty	M.A (Islamic Culture)	University of Sindh, Jamshoro
21	Mr. Ghulam Hussain Brohi	Visiting Faculty	M.A (Islamic Culture)	University of Sindh, Jamshoro
22	Ms. Ayesha Kalwar	Visiting Faculty	M.A (Pakistan Studies)	University of Sindh, Jamshoro
23	Mr. Asfaque Bughio	Visiting Faculty	M.A (Pakistan Studies)	University of Sindh, Jamshoro

Details of Teaching Assistant Engaged in Teaching

r.#	Name	Designation	Qualification	University
01	Engr. Javeed Hussain Hakro	Teaching Assistant	MSIT	Sindh Agriculture University Tandojam
02	Mr. Zafar Bhutto	Lab Lecturer	MSIT	Sindh Agriculture University Tandojam
03	Mr. Azam Raza Shah	Teaching Assistant	MSIT	Sindh Agriculture University Tandojam
04	Mr. Sheeraz Qureshi	Lab Lecturer	MSIT	Sindh Agriculture University Tandojam
05	Ms. Shazia Soomro	Teaching Assistant	MS (Artificial Intelligence)	Sindh Agriculture University Tandojam
06	Ms. Farah Sheereen	Teaching Assistant	MSIT	Sindh Agriculture University Tandojam
07	Mr. Kamran Jamali	Teaching Assistant	MSIT	Sindh Agriculture University Tandojam
08	Mr. Mashood Ahmed Nizamani	Teaching Assistant	MSIT	Sindh Agriculture University Tandojam
09	Mr. Tasaduq Hussain Khoso	Lab Lecturer	MSIT	Sindh Agriculture University Tandojam
10	Mr. Ramesh Kumar	Lab Lecturer	MSIT	Sindh Agriculture University Tandojam
11	Ms. Hina Shafi	Lab Lecturer	MSIT	Sindh Agriculture University Tandojam
12	Mr. Syed Baig Ali Shah	Lab Lecturer	MSIT	Sindh Agriculture University Tandojam
13	Mr. Irfan Soomro	Lab Lecturer	MSIT	Sindh Agriculture University Tandojam
14	Mr. Ghulam Hussain	Lab Lecturer	MSIT	Sindh Agriculture University Tandojam

Teachers Profile

Faculty Profile Summary

Particular	Details
Teacher Name	Prof. Dr. Pinial Khan Butt
Designation	Professor (BPS-21) & Postgraduate Coordinator Information Technology Centre (ITC)
Area of Expertise	Energy efficient computing, E-health, E-commerce, Service oriented architecture, Web Development
Qualification	Ph.D. in Computer Science & Technology, Central South University, China (2017); MSc Telecommunication Technology University of Sindh (2002). Certificate Course, Ensuring Training Effectiveness 2011.03 (3 weeks) Asian Institute of Technology, Bangkok, Thailand
Experience	23+ years of teaching, research, academic administration and IT leadership (since December 2002)
Publications	34 national and international research publications.
No. of PhD Students	02 PhD candidates in the final defence phase
MS/MSc Students Produced	30 MSIT students produced (2017-2026)
Trainings Conducted	Involved in IT/ICT practical training, student capacity building and professional skills development through ITC
Trainings Organized	Coordinated ITC training and certification support, Digital library courses, HEC trainings for officers and Teachers.
Resource Person	Keynote Speaker 1. 2022 International Symposium on Robotics, Artificial Intelligence and Information Engineering (RAIIE2022). 2. Four-Days training program on Essential Skills of Office Automation for Academicians. Faculty members of Sindh Agriculture University Tando Jam. Sponsored by learning Innovation Higher Education Commission .Pakistan.19-22 May 2010.

	3. Six-Days training program on Essential Skills of Office Automation for academicians for Administration staff members of Sindh Agriculture University Tando Jam. Sponsored by learning Innovation Higher Education Commission Pakistan. 21-26 August 2010. 4. Web Developer and Software Engineer training courses by Benazir Bhutto Shaheed Youth Development Program, IT Department Govt of Sindh, Pakistan.
No. of Projects	6 funded and applied research/innovation projects
National and International Awards Received	PhD Scholarship, China Scholarship Council, China. 2011-2016 PhD studies Travel grant, Higher Education Commission, Pakistan, 2011 Outstanding Patriciate in Computer Driving License Test, Higher Education Commission, Pakistan, 2007
Conferences/Workshops Organized	09 major national/international conference leadership or committee assignments, including General Co-Chair, Program Committee (ISSR 2020) Nanjing, China Oct 23-25, 2020, (ISSR 2019) Atlanta, USA July 14-17, 2019. (ISSR 2018) Melbourne, Australia December 11-13, 2018. NOPE 2018 The Guangzhou, China, October 8-12, 2018. 2013 Chair the sessions in (IEEE HPCC-13) Zhangjiajie, Hunan Province, China. and IEEE CSE; and technical committee roles for 2026-2027 conferences
Professional Membership	Member, Zarai Science Magazine, Sindh Agriculture University Tando Jam Pakistan.
Awards (if any)	N/A

Faculty Profile Summary

Particular	Details
Teacher Name	Mukhtiar Memon
Designation	Professor
Area of Expertise	Software Engineering
Qualification	PhD
Experience	24 Years
Publications	45
No. of PhD Students	1 (In Process)
MS/MSc Students Produced	17
Trainings Conducted	12
Trainings Organized	10
Resource Person	10
No. of Projects	1
National and International Awards Received	02
Conferences/Workshops Organized	03
Professional Membership	
Awards (if any)	

Detailed profiles can be viewed at: https://sau.edu.pk/for_hec_subjects_repositories.php

Annex B – Student Enrolment and Faculty Allocation Records

Students Statistics

Programme	Batch	No. of Students
BSIT	2K26	276
	2K24	256
	2K23	201
	2K22	203
BSIT Subtotal		936
BSCS	2K26	91
	2K24	67
	2K23	61
	2K22	50
BSCS Subtotal		269
BSSE	2K26	83
	2K24	82
	2K23	70
	2K22	52
BSSE Subtotal		287

Programme	Batch	No. of Students
Grand Total		1,492

List of Teachers

S. No	Name of Teacher	Designation	Degree
1	Prof. Dr. Mir Sajjad Hussain Talpur	Professor	PhD
2	Prof. Dr. Mubeen Pathan	Professor	PhD
3	Prof. Dr. Mukhtiar Memon	Professor	PhD
4	Prof. Dr. Pinial Khan Butt	Professor	PhD
5	Dr. Suhni Abbasi	Associate Prof	PhD
6	Dr. Mansoor Hyder Depart	Associate Professor	PhD
6	Dr. Kavita Tabbasum	Associate Prof	PhD
7	Dr. Erum Saba	Assistant Prof	PhD
8	Dr. Zulfikar Maher	Assistant Prof	PhD
9	Dr. Yaqoob koondhar	Assistant Prof	PhD
10	Ms. Saima Shaikh	Assistant Prof	PhD (Cont)
11	Ms. Farah Naveen	Assistant Prof	PhD (Cont)
12	Dr. Ghulam Ali Rahu	Assistant Prof	PhD
13	Ms. Saima Tunio	Assistant Prof	PhD (Cont)
14	Mr. Suhraab Thaheem	Assistant Prof	PhD (Cont)
15	Mr. Irfan Shahani	Assistant Prof	Masters
16	Mr. Zeeshan Nizamani	Lecturer	PhD (Cont)
17	Dr. Arif Hussain Magsi	Lecturer	PhD
18	Mr. Noor Nabi	Teaching Assist	PhD (Cont)

19	Mr. Rahib Talpur	Visiting Faculty	PhD (Cont)
20	Mr. Amir Bangash	Visiting Faculty	PhD (Cont)
21	Ms. Rabia Memon	Visiting Faculty	Masters
22	Ms. Naina Oad	Visiting Faculty	Masters
23	Dr. Zafar Siddiqui	Visiting Faculty	PhD
24	Ms. Hina Chandio	Teaching Assist	PhD (Cont)
25	Mr. Zafar Bhutto	Teaching Assist	PhD (Cont)
26	Mr. Javed Hakro	Teaching Assist	Masters
27	Mr. Azam Raza	Teaching Assist	Master
28	Mr. Irfan Soomro	Teaching Assist	PhD (Cont)
29	Mr. Sheeraz Qureshi	Teaching Assist	PhD (Cont)
30	Ms. Shazia Soomro	Teaching Assist	Masters
31	Mr. Tasaduq Khoso	Teaching Assist	PhD (Cont)
32	Mr. Ramesh	Teaching Assist	PhD (Cont)
33	Mr. Baig Shah	Teaching Assist	PhD (Cont)
34	Ms. Farah Sheereen	Teaching Assist	Masters
35	Mr. Ghulam Hussain	Teaching Assist	PhD (Cont)
36	Mr. Kamran Jamali	Teaching Assist	Masters
37	Mr. Mashood Ahmed Nizamani	Teaching Assist	Masters
38	Mr. Veeru Mal	Assistant Prof	Masters
39	Mr. Sufyan	Visiting Faculty	Masters
40	Mr. Waseem	Visiting Faculty	Masters
41	Ms. Uroosa	Visiting Faculty	Masters
42	Mr. Jahanzeb Talpur	Visiting Faculty	Masters
43	Ms. Qurat ul Ain	Visiting Faculty	Masters
44	Ms. Mariyam	Visiting Faculty	Masters
45	Ms. Samreen	Visiting Faculty	Masters
46	Dr. Farkhanda Warsi	Visiting Faculty	PhD (Cont)
47	Ms. Asma Laghari	Visiting Faculty	Masters
48	Mr. Ghulam Hussain Brohi	Visiting Faculty	Masters
49	Ms. Ayesha Kalwar	Visiting Faculty	Masters
50	Mr. Ashfaq	Visiting Faculty	Member

**Annex C – Academic Council, Board of Faculty and Board of Studies
Minutes**

Sindh Agriculture University Tandojam

No. Gen./PC/BOS-ITC/ 36

/of 2021

Dated: 15-01-2021.

OFFICE ORDER:

Pursuant to clause-7(2)(i), (ii) and (iii) of the First Statutes of Sindh Agriculture University, recommendations of the Director, Information Technology Centre and in exercise of the powers delegated to the Vice Chancellor by the Academic Council / Syndicate /Senate, the composition of the 'Board of Studies' of the Information Technology Centre is re-notified hereunder.

Clause-7(2)(i): The Chairman of the Department and all Professors and Associate Professors in the department

- | | |
|----------------------------------|----------|
| 1. Dr. Mansoor Hyder Depar | Chairman |
| Associate Professor | |
| 2. Dr. Mubina Pathan | Member |
| Associate Professor | |
| 3. Dr. Mir Sajjad Hussain Talpur | Member |
| Associate Professor | |

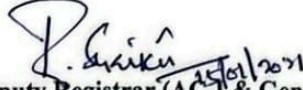
Clause-7(2)(ii): Such University teachers other than a Professor or an Associate Professor to be nominated by the Vice Chancellor

- | | |
|--|--------|
| 1. Dr. Mukhtiar Memon | Member |
| Assistant Professor, Information Technology Centre | |
| 2. Ms. Erum Saba | Member |
| Assistant Professor, Information Technology Centre | |
| 3. Ms. Kavita Tabbassum | Member |
| Assistant Professor, Information Technology Centre | |

Clause-7(2)(iii): One expert to be appointed by the Vice Chancellor

- | |
|--|
| 1. Dr. Imtiaz Ali Korejo, Professor, Institute of mathematics and Computer Science, University of Sindh, Jamshoro. |
|--|

It is further mentioned that as provided in clause 7(3) the term of office of members of the board of Studies other than ex-officio members mentioned at sub-clauses (ii) and (iii) shall be three years.


Deputy Registrar (AC-I & Gen.)

Copy to:

1. The Dean, Faculty of Agricultural Social Sciences, SAU Tandojam
2. The Director, Information Technology Centre, SAU Tandojam
3. All Concerned
4. Office File

INFORMATION TECHNOLOGY CENTRE

SINDH AGRICULTURE UNIVERSITY, TANDOJAM

No. ITC/ 301 / of 2022

Dated: 30-08-2022

MINUTES OF THE MEETING OF 34th BOARD OF STUDIES OF THE INFORMATION TECHNOLOGY CENTRE, SINDH AGRICULTURE UNIVERSITY, TANDOJAM HELD ON WEDNESDAY 01ST JUNE 2022 AT 10:30AM IN THE OFFICE OF THE DIRECTOR INFORMATION TECHNOLOGY CENTRE.

Following members of the board of studies attended the meeting:

- | | |
|--|-----------------|
| 1. Dr. Mansoor Hyder Depar
Director, ITC | Chairman |
| 2. Dr. Mubina Pathan
Associate Professor, | Member |
| 3. Dr. Mir Sajjad Hussain Talpur
Associate Professor, ITC | Member |
| 4. Dr. Mukhtiar Memon
Assistant Professor, ITC | Member |
| 5. Dr. Erum Saba
Assistant Professor, ITC | Member |
| 6. Dr. Kavita Tabbassum
Assistant Professor, ITC | Member |
| 7. Dr. Imtiaz Ali Korejo
Professor, University of Sindh | Member (Expert) |

After recitation from Holy Qur'an the proceeding of meeting was started. Following item was discussed.

ITEM NO.1: TO DISCUSS AND APPROVE THE HEC NATIONAL CURRICULUM 2023 SCHEME OF BSIT, BSCS, AND BSSE IN THE ITC SEMESTER SYSTEM.

According to NCEAC, HEC Islamabad, Dr. Mir Sajjad Hussain Talpur highlights the approved HEC National Curriculum 2023 Scheme BSIT, BSCS, and BSSE (Hons.). The following resolution was unanimously approved by the house.

Resolution No. [34th BoS]-1: "Resolved and decided to adopt the new approved HEC National Curriculum 2023 Scheme of BSIT, BSCS, AND BSSE(Hons) by HEC Islamabad was recommended to the Academic Council and Faculty Board of Studies for approval."

The meeting then ended with vote of thanks to & from the chair.

Dr. Mir Sajjad Hussain Talpur

Incharge Director

Cc. to:

1. PS to Vice Chancellor, Sindh Agriculture University, Tandojam.
2. The Dean, Faculty of Agricultural Social Sciences, SAU, Tandojam
3. The Director Advanced Studies, SAU, TandoJam.
4. All members of the Board of Studies.

Academic Council – Meeting Minutes

Sindh Agriculture University Tandojam

No. AC-I [113th Synd.] / 577 / of 2022

Dated: 15-11-2022

- Reference:
1. Recommendations of the Board of Faculty of Agricultural Social Sciences held on 22nd April 2022
 2. Recommendations of the 76th Academic Council held on 06th June 2022
 3. Approval of the 113th Syndicate held on 24th September 2022

Notification:

Pursuant to the above references/recommendations, the Syndicate in its 113th meeting held on 24-09-2022 is pleased to accord approval for starting/offering **BS 04-years degree program in Software Engineering** from Academic Session 2022-23, by the Information Technology Center, Faculty of Agricultural Social Sciences at SAU Tandojam.


Additional Registrar

Copy to:

1. The Dean, Faculty of Agricultural Social Sciences, SAU Tandojam.
- ✓ 2. The Director, Information Technology Center, SAU Tandojam.
3. The Director Admissions, SAU Tandojam
4. The Controller of Examinations, SAU Tandojam.
5. The Director Finance, SAU Tandojam.
6. Office File.

Sindh Agriculture University Tandojam

No. AC-I [113th Synd.] / 577 /

of 2022

Dated: 15-11-2022

- Reference:
1. Recommendations of the Board of Faculty of Agricultural Social Sciences held on 22nd April 2022
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4. The Controller of Examinations, SAU Tandojam.
5. The Director Finance, SAU Tandojam.
6. Office File.



Sindh Agriculture University

Tando Jam, Sindh Pakistan 70060

Ph. 92-22-9250620, Fax 92-22-9250621 | website: www.sau.edu.pk | E-mail: registrar@sau.edu.pk

No. AC-I / 82nd Acad. / 366 / of 2025

Dated:- 13-06-2025

SUBJECT: MINUTES OF EIGHTY-ONE (82ND) MEETING OF THE ACADEMIC COUNCIL OF SINDH AGRICULTURE UNIVERSITY, TANDOJAM.

Reference: No. AC-I / 82nd Acad. / 47 / of 2025 Dated: 22-01-2025

Dear Sir/Madam,

Kindly find enclose herewith copy of the minutes of Eighty-Two (82nd) meeting of Academic Council held on Tuesday, January 28th 2025, at 11:00 am in the Senate Hall, Administration Block, Sindh Agriculture University Tandojam.


G. M. Qureshi
REGISTRAR

Distribution to:

1. The Vice Chancellor, SAU Tandojam
2. The Secretary (College Education), Education Department, Government of Sindh Karachi
3. The Secretary, Government of Sindh (Universities and Boards), Karachi
4. Dr. A. Q. Mughal, Professor Emeritus, SAU Tandojam
5. The Pro-Vice-Chancellor, SAU Campus, Umerkot
6. All Deans of the Faculties, SAU Tandojam
7. The Principal, KCAMS, Khairpur Mir's
8. All Professors, SAU Tandojam
9. The Director, Institute of Food Sciences & Technology
10. The Director, Information Technology Center, SAU Tandojam
11. All Chairmen / Incharge Chairmen of Teaching Departments, SAU Tandojam
12. The Director, Advanced Studies SAU Tandojam
13. The Registrar, SAU Tandojam
14. The Librarian, SAU Tandojam
15. The Controller of Examinations, SAU Tandojam
16. The Director, Quality Enhancement Cell, SAU Tandojam
17. In-charge(s) of Departments, at SAU Tandojam (Special Invitation)
18. All Coordinators (undergraduate / postgraduate programs) (Special Invitation)
19. The Deputy Registrar (Admissions), SAU Tandojam (Special Invitation)

Board of Faculty – Meeting minutes

Agenda and Working Paper of the Meeting of the Board of Faculty, FASS Scheduled for Thursday, September 18, 2025 at 10.00 am in the Faculty Committee Room

Item 01: Confirmation of the Minutes of the Meeting Held on Thursday, November 07, 2024

A meeting of the Board of Faculty, FASS, was held on Thursday, November 07, 2024. The minutes of the meeting are placed on **Pages 3-8**. The house is requested to confirm the minutes of the meeting.

Item 02: Confirmation of the Actions Taken on the Minutes of the Meeting Held on Thursday, November 07, 2024

Actions on the minutes of the meeting held on Thursday, November 07, 2024, were duly taken. Letters were issued to the relevant offices, and a summary of the actions taken is presented on **Pages 9-10**. The house is requested to confirm the action taken report.

Item 03: Application for Upgradation of the "Information Technology Centre (ITC)" to the "Faculty of Information and Communication Technologies (FICT)"

The Director, Information Technology Centre, SAU, has sent a letter vide No. ITC/292/2025, dated 27.08.2025. A copy of the letter is placed on **Pages 11-12**. The proposal for the upgradation of the "Information Technology Centre (ITC)" to the "Faculty of Information and Communication Technologies (FICT)" was earlier recommended in the meeting of the Board of Studies, ITC, held on Tuesday, August 31, 2023. The house is requested to deliberate and develop recommendations regarding this proposal.

Item 04: Request for Recognition of Teachers as Supervisors of Master's Theses

- I. Dr. Arif Hussain Magsi, Lecturer, ITC for recognition as a Supervisor of MSIT
- II. Dr. Ghulam Hussain Wagan, Lecturer, Department of Agricultural Economics for recognition as a Supervisor of M.Sc. (Agri.) Hons. in Agricultural Economics and MS in Agribusiness Management.

Requests for recognition of the above-mentioned teachers have been received from the Director, ITC, vide letter No. ITC/65/2025, dated 26.02.2025 and the Chairman, Department of Agricultural Economics, vide letter No. AES/78/2025, dated 23.04.2025. The profiles of the teachers are presented as follows:

S #	Name and Address	Publications		Teaching/ Research Exp.	Applied	Field	Remarks
		Total	HEC				
01	Dr. Arif Hussain Magsi, Lecturer, ITC, SAU, Tandojam	15	15	4 Years	MSIT Supervisor	MSIT	Eligible
02	Dr. Ghulam Hussain Wagan, Lecturer, Dept. Agricultural Economics, SAU, Tandojam	5	5	2 Years	M.Sc. Supervisor	1. Agri. Economics 2. Agribusiness Management	Eligible

Rules for Recognition:

A teacher/ scientist of SAU may be recognized as a Supervisor of any M.Sc./ME (Agri.) M.Phil. students if he /she possesses master's degree in the relevant field of studies with three years teaching / research experience or two research publication in the HEC Recognized Journals.

Minutes of the Meeting of the _____ Faculty, FASS, SAU, Tandojam

Date and Time: Thursday, November 07, 2024, at 10:00 a.m.

Location: Committee Room, Faculty of Agricultural Social Sciences (FASS), SAU, Tandojam

Attendance

The meeting was chaired by Dr. Aijaz Ali Khooharo, Dean, FASS. The following members attended the meeting:

- 1 Dr. Zaheeruddin Mirani, Professor & Chairman, Dept. AEE&SC
- 2 Dr. Velo Sulhar, Professor & Chairman, Dept. of Statistics
- 3 Dr. Muhammad Hanif Lakhio, Professor, Dept. of Statistics
- 4 Dr. Riaz Ali Bunro, Professor, Dept. of Statistics
- 5 Dr. Barkatullah Qureshi, Professor, Dept. of statistics
- 6 Dr. Mir Sajjad Hussain Talpur, Professor & Director, ITC
- 7 Dr. Mubeena Pathan, Professor, ITC
- 8 Dr. Mukhtiar Ahmed Memon, Professor, ITC
- 9 Dr. Pinial Khan Butt, Professor, ITC
- 10 Dr. Ghulam Mujtaba Khushik, Professor & Chairman, Dept. of Rural Sociology
- 11 Dr. Habibullah Magsi, Professor & Chairman, Dept. of Agricultural Economics
- 12 Dr. Shabana Sarfaj, Associate Professor & Chairperson, Dept of English
- 13 Dr. Hakimzadi Wagan, Professor, Dept. of Agricultural Economics
- 14 Mr. Jaleel Ahmed Iqbal, Assistant Professor, Dept. of AEE& Sc.
- 15 Mr. Manzoor Ali Narejo, Assistant Professor, Dept. of AEE& Sc.
- 16 Mr. Muhammad Ali Shaikh, Assistant Professor, Dept. of Rural Sociology
- 17 Mr. Abdul Munaim Brohi, Assistant Professor, Dept. of Islamic and Pak. Study
- 18 Mr. Faqir M. Hub, Assistant Professor, Dept. of Islamic and Pak. Study
- 19 Mr. Amin Muhammad Soomro, Assistant Professor, Dept. of English
- 20 Dr. Erum Sabba, Associate Professor, ITC
- 21 Dr. Zulfiqar Ahmed Mahar, Assistant Professor, ITC
- 22 Dr. Rafique Ahmed Chandio, Professor, Chairman, Department of Economics, US, Jamshoro
- 23 Dr. Zafar Ahmed Siddiqui, Director ORIC, University of Modern Sciences, T. M. Khan

Meeting started with the recitation of the Holy Quran. The Dean, Dr. Aijaz Ali Khooharo, welcomed all members to the meeting, expressing appreciation for the contributions of the outgoing members and warmly welcoming the new members. Dr. Khooharo informed the house about the formation of the Board of Faculty (BoF) in accordance with Clause 4 (1) (i) to Clause 4 (1) (iv). All members introduced themselves. Dr. Khooharo introduced external members Dr. Rafique Ahmed Chandio, Chairman of the Department of Economics, University of Sindh, Jamshoro, and Dr. Zafar Ahmed Siddiqui, Director of ORIC, University of Modern Sciences, Tando Muhammad Khan. Another external member, Dr. Heman Das Lohano, Professor at IBA Karachi, was unable to attend the meeting in person. He was introduced to the house, and although he was scheduled to join the meeting online, he could not participate due to technical problems.

Agenda Items and Resolutions

Item 1: Scheme of Undergraduate Degree Programs, Part I & II – FASS

The Dean informed the house that, in response to the new undergraduate policy announced by the Higher Education Commission, Islamabad, a committee was established to review the policy and propose a revised undergraduate syllabus. Dr. Jam Ghulam Murtaza Sahito, who was then the Postgraduate Coordinator and is now the Principal of Khairpur College of Agricultural Engineering and Technology, was tasked with proposing courses for the undergraduate degree programs offered by FASS for Parts I and II. Dr. Sahito revised the courses for Parts I and II and provided guidelines for the syllabus of Parts III and IV, recommending that two courses—Capstone and Internship—be included in Semesters VII and VIII, respectively. His efforts were highly appreciated.

Honorable members provided their input and suggested changes in course codes, titles, and sequencing based on academic level. Dr. Zaheeruddin Mirani, Chairman of the Department of Agricultural Education, Extension & Short Courses, discussed the distinctions between the Capstone and internship courses in detail. The overall summary of the courses was presented. Below is a detailed breakdown of the credit hours (Cr. Hrs.) for the first four semesters and beyond:

1. First Four Semesters.

- ❖ **Major Courses (Cr. Hrs.):** 18 credit hours will be dedicated to core subjects specific to the field of study, forming the foundation of the program. These courses are designed to equip students with the necessary specialized knowledge and skills.
- ❖ **General Education Courses (Cr. Hrs.):** 30 credit hours are allocated to general education courses, which are essential to broaden students' academic experiences and ensure a well-rounded education. These include courses in the humanities, social sciences, natural sciences, and mathematics.
- ❖ **Interdisciplinary/Allied Courses (Cr. Hrs.):** 34 credit hours are focused on interdisciplinary or allied courses, which complement the major coursework and provide students with a broader understanding of related fields, helping to enhance their analytical and problem-solving skills.

2. After Four Semesters:

- ❖ **Internship & Capstone Project (Cr. Hrs.):** After completing the core and allied courses, students are required to undertake an internship and complete a capstone project, each contributing 3 credit hours. The internship offers practical work experience, while the capstone project allows students to apply their academic learning to real-world challenges, demonstrating their ability to integrate and synthesize knowledge.

3. Overall Program Structure

- ❖ **Total Major Credit Hours:** 72 credit hours will be dedicated to the major courses, ensuring deep subject matter expertise by the end of the program.
- ❖ **Total Interdisciplinary Credit Hours:** 34 credit hours will be allotted to interdisciplinary courses, enriching students' academic perspective and fostering a cross-disciplinary approach to problem-solving.
- ❖ **Total General Education Credit Hours:** 30 credit hours to ensure students have a strong general education background.

- ❖ **Capstone & Internship Credit Hours:** 6 credit hours (3 each for the Capstone and Internship) are included in the later stages of the program for practical exposure and real-world application of knowledge.

- 4. **Total Credit Hours for Degree:** The total number of credit hours required to complete the degree is 142. This includes all major, general education, interdisciplinary, capstone, and internship courses, ensuring a comprehensive and balanced educational experience.

After an in-depth discussion, the following resolution was passed.

Resolution 1:

It is resolved that the revised courses for Part I & II of the Faculty of Agricultural Social Sciences, after incorporating the suggested changes, are hereby recommended by the Board of Faculty, FASS. The revised courses are to be forwarded to the Registrar's Office for submission to the Academic Council for approval.

Item 2: B.Sc. (Agri.) Hons. Agricultural Economics, Part III & IV

Dr. Habibullah Magsi, Professor and Chairman of the Department of Agricultural Economics, presented the revised syllabus for the B.Sc. (Agri.) Hons. in Agricultural Economics, Parts III & IV. Dr. Rafique Ahmed Chandio and Dr. Zafar Ahmed Siddiqui provided their suggestions. After a thorough discussion, the following resolution was passed:

Resolution 2:

Resolved that the revised courses for B.Sc. (Agri.) Hons. in Agricultural Economics, Parts III & IV, after incorporation of the suggested changes, are recommended by the Board of Faculty, FASS, and forwarded to the Registrar's Office for submission to the Academic Council for approval.

Item 3: B.Sc. (Agri.) Hons. Agribusiness Management, Part III & IV

Dr. Hakimzadi Wagan, Professor and Postgraduate Coordinator of Agribusiness Management, presented the revised syllabus for the B.Sc. (Agri.) Hons. in Agribusiness Management, Parts III & IV. Dr. Rafique Ahmed Chandio and Dr. Zafar Ahmed Siddiqui provided their suggestions. Following a thorough discussion, additional suggestions were made by Dr. Zaheeruddin Mirani, Dr. Velo Suthar, Dr. Ghulam Mujtaba Khushk, and Dr. Shabana Sartaj. After incorporating these inputs, the following resolution was passed:

Resolution 3:

Resolved that the revised courses for B.Sc. (Agri.) Hons. in Agribusiness Management, Parts III & IV, after incorporating the suggested changes, are recommended by the Board of Faculty, FASS, and forwarded to the Registrar's Office for submission to the Academic Council for approval.

Item 4: B.Sc. (Agri.) Hons. Agricultural Economics, Part III & IV

Annex D – NCEAC Accreditation and HEC Compliance



Higher Education Commission
National Computing Education Accreditation Council
(NCEAC)



NCEAC/HEC/GC-43/10-2024
08-Oct-2024

Dr. Muhammad Yaqoob Koondhar
Assistant Professor & Focal Person NCEAC
Information Technology Centre
Sindh Agriculture University Tandojam

Subject: Accreditation for the BS Information Technology Degree Program of Sindh Agriculture University, Tandojam, Hyderabad

Please refer to your application regarding accreditation of the **BS Information Technology** degree program offered by your university and subsequent visit of Accreditation Inspection Committee of National Computing Education Accreditation Council (NCEAC) on 19-Jan-2023.

NCEAC General Council in its 43rd meeting held on 19-Sep-2023 has decided to award accreditation to the intake of Batches, **Spring 2019**, of your program as per enclosed Accreditation Profile. "*Max 150 Students/Yr. (3 Sections/Yr.)*"

Regards

Muhammad Jawad Bukhari
Program Manager, NCEAC

Copy To:

Prof. Dr. Mir Sajjad Hussain Talpur
Director, Information Technology Centre
Sindh Agriculture University Tandojam

Prof. Dr. Fateh Muhammad Marri
Vice Chancellor
Sindh Agriculture University Tandojam

Prof. Dr. Aijaz Ali Khooharo
Dean, Faculty of Agricultural Social Sciences
Sindh Agriculture University Tandojam

Mr. Ghulam Muhiuddin Qureshi
Registrar
Sindh Agriculture University Tandojam

Office Copy



www.nceac.org.pk



051-90802771-2



NCEAC Secretariat Room# 14-015 N-Block, HRD
Building HEC, H-8/1, Islamabad



Higher Education Commission
National Computing Education Accreditation Council
(NCEAC)



NCEAC/HEC/Blanket/03-26/1
March 14, 2026

Dr. Muhammad Yaqoob Koondhar
Assistant Professor
Focal Person NCEAC
Sindh Agriculture University, Tandojam

Subject: Blanket Approval for Covid affected batches Spring-2017 & Spring-2018

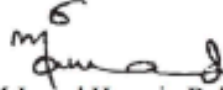
With reference to the application submitted by Sindh Agriculture University, Tandojam, regarding the request for blanket approval of the Spring-2017 and Spring-2018 batches of the BS Information Technology degree program, the matter has been duly reviewed by the National Computing Education Accreditation Council.

After careful consideration and evaluation of the submitted documentation and relevant academic records, the National Computing Education Accreditation Council has decided to grant blanket approval for the Spring-2017 and Spring-2018 batches of the BS Information Technology degree program offered by Sindh Agriculture University, Tandojam.

This approval has been accorded in accordance with the applicable policies, procedures, and academic standards of the National Computing Education Accreditation Council. The university is advised to ensure continued compliance with all relevant guidelines, regulations, and quality assurance requirements prescribed by the Council for computing degree programs.

Please note that this approval is granted specifically for the aforementioned batches and does not automatically extend to subsequent intakes unless otherwise notified by the Council.

Yours sincerely,


M Jawad Hussain Bukhari
Program Manager
NCEAC

Office Copy



Higher Education Commission
National Computing Education Accreditation Council
(NCEAC)



Undergraduate Degree Program Review Worksheet

Sindh Agriculture University, Tandojam, Hyderabad

Accreditation Visit for BS Information Technology(Spring 2017, Spring 2018, Spring 2019,)

Accreditation Inspection Committee (AIC)

Member/Evaluator As A - Name	Date of Visit
Convener - Zubair Ahmad Shaikh	19 January 2023
Member - Nasir Tauheed	19 January 2023

Evaluation Summary

Annex E – Course Implementation, Course Files and Learning Outcomes

Course Allocation – Odd Semester 2026

Name of Department: Information Technology Centre

Faculty: FASS

Teaching Workload for Available Faculty

- Professor 06 Credit Hours (2 courses of 3 credit hours each)
- Associate Professor 09 Credit Hours (3 courses of 3 credit hours each)
- Assistant Professor 09 Credit Hours (3 courses of 3 credit hours each)
- Lecturer 12 Credit Hours (4 courses of 3 credit hours each)

S #	Name of Department/Section	Permanent Teaching Staff					Teaching Workload Available Staff Workload
		Prof.	Assoc. Prof.	Assist. Prof.	Lecturer/Teaching Assistant	Total	
1.	Information Technology Centre	4	2	9	3	18	Teaching workload: 230 Staff workload: 159

Courses Offered during Current Semester (January – June 2026) i.e., odd (1, 3, 5, 7) for Undergraduate and Even (2,4,6,8) for Postgraduate Degree Programs

S #	Course Code	Offered to Faculty	Credit Hours	Course Offered to Number of Batches	Total credit hours as a workload = Credit Hrs* Number of Batches
Undergraduate					
1.	ITC-301 (Section A)	Ms. Saima Tunio	4(3-1)	1	4
2	ITC-301 (Section B)	Mr. Rahib Talpur	4(3-1)	1	4
2.	ITC-303	Mr. Noor Nabi	3(2-1)	2	6
3	BE-301	Dr. Erum Saba	3(2-1)	2	6
4.	ITC-401	Dr. Sajjad Hussain	4(3-1)	1	4
	ITC-401	Ms. Hina Chandio	4(3-1)	1	4
5.	ITC-403	Dr. Zulfikar Maher	3(2-1)	2	6
6.	ITC-405	Dr. Mukhtiar Memon	3(3-0)	2	6
7.	ITC-407	Mr. Rameshs	3(3-0)	2	6

8.	ITC-409 (Section A)	Dr. M. Yaqoob Koondhar	2(2-0)	1	2
8	ITC-409 (Section B) Entrepreneurship	Dr. Zafar Siddiqui	2(2-0)	1	2
9.	ITC-501	Dr. Ghulam Ali Rahu	3(3-0)	2	6
10.	ITC-503 (Section A)	Mr. Suhrab Thaheem	3(3-0)	1	3
11	ITC-503 (Section B)	Mr. Tasaduq Khoso	3(3-0)	1	3
11.	ITC-505	Dr. Suhni Abbasi	3(2-1)	2	6
12.	ITC-507	Mr. Noor Nabi	3(2-1)	2	6
13.	ITC-509	Mr. Baig Shah	3(2-1)	2	6
14.	ITC-511	Dr. M. Yaqoob Koondhar	3(3-0)	2	6
15.	ITC-601	Ms. Saima Shaikh	3(3-0)	2	6
16.	ITC-603	Mr. Suhrab Thaheem	3(2-1)	2	6
17.	ITC-605	Dr. Pinial Khan	3(3-0)	2	6
18.	ITC-607	Ms. Saima Tunio	3(2-1)	2	6
19.	SE-301	Mr. Rahib Talpur	4(3-1)	1	4
20.	SE-303	Mr. Ghulam Hussain	3 (2-1)	1	3
21	SE-401	Ms. Farah Naveen	4 (3-1)	1	4
22	SE-403	Dr. Arif Hussain Magsi	3 (2-1)	1	3
23	SE-405	Mr. Zeeshan Nizamani	3 (3-0)	1	3
24	SE-407	Dr. Kavita Tabbasum	3 (3-0)	1	3
25	SE-409 (Entrepreneurship)	Dr. Zafar Siddiqui	2(2-0)	1	2
26	SE-501	Mr. Amir Bangish	3(2-1)	1	3
27	SE-503	Dr. Arif Hussain Magsi	4(3-1)	1	4
29	SE-505	Mr. Irfan Shahani	3(3-0)	1	3
30	SE-507	Dr. Erum Saba	3(3-0)	1	3
31	SE-601	Mr. Amir Bangish	3(3-0)	1	3
32	SE-603	Mr. Zafar Bhutto	3(2-1)	1	3
33	SE-607	Mr. Rahib Talpur	3(2-1)	1	3
34	SE-605	Mr. Irfan Shahani	3(2-1)	1	3
35	SE-609	Dr. Mubeena Pathan	3(2-1)	1	3
36	CS – 301	Mr. Rahib Talpur	4(3-1)	1	4
37	CS-303	Mr. Amir Bangish	3(2-1)	1	3
39	CS-401	Ms. Farah Naveen	4(3-1)	1	4

40	CS-403	Ms. Saima Shaikh	3(2-1)	1	3
41	CS-405	Mr. Zeeshan Nizamani	3(3-0)	1	3
42	CS-407	Mr. Amir Bangish	3(3-0)	1	3
43	CS-409 (Entrepreneurship)	Dr. Zafar Siddiqui	2(2-0)	1	2
44	CS – 501	Mr. Zeeshan Nizamani	3(3-0)	1	3
45	CS – 503	Dr. Ghulam Ali Rahu	3(3-0)	1	3
46	CS – 505	Dr. Kavita Tabbasum	4(3-1)	1	4
47	CS – 507	Mr. Irfan Shahani	3(3-0)	1	3
48	CS – 601	Dr. Suhni Abbasi	3(3-0)	1	3
49	CS – 603	Dr. Zulfikar Maher	3(3-0)	1	3
50	CS – 607	Dr. Mubeena Pathan	3(3-0)	1	3
51	CS – 609	Mr. Zeeshan Nizamani	3(3-0)	1	3
54	ITC-301 (FASS)	Ms. Rabia Memon	3(2-1)	1	3
55	ITC-301 (FAHVS)	Ms. Rabia Memon	3(2-1)	3	9
56	ICT-401 (FCPT)	Ms. Naina Oad	3(2-1)	1	3
57	AIEI-109 (FAE)	Ms. Naina Oad	3(2-1)	1	3
58	ICT-111 (FAE)	Ms. Naina Oad	3(2-1)	1	3
59	IT-113 (FAE)	Ms. Naina Oad	3(2-1)	1	3
Total Workload					231 Cr. Hrs
Workload for Present Faculty Members including visiting faculty and supporting staff					231 cr. Hrs

Even Semester Workload Distribution

Name of Department: Information Technology Centre

Faculty: FASS

Teaching Workload for Available Faculty

- Professor 06 Credit Hours (2 courses of 3 credit hours each)
- Associate Professor 09 Credit Hours (3 courses of 3 credit hours each)
- Assistant Professor 09 Credit Hours (3 courses of 3 credit hours each)
- Lecturer 12 Credit Hours (4 courses of 3 credit hours each)

S #	Name of Department/Section	Permanent Teaching Staff					Teaching Workload Available Staff Workload
		Prof.	Assoc. Prof.	Assist. Prof.	Lecturer/Teaching Assistant	Total	
1.	Information Technology Centre	4	2	9	3	18	Teaching workload: 210 Staff workload: 151

Courses Offered during Current Semester (July – December 2026) i.e., Even (2, 4, 6, 8) for Undergraduate Degree Programs

S #	Course Code	Offered to Faculty	Credit Hours	Course Offered to Number of Batches	Total credit hours as a workload = Credit Hrs* Number of Batches
Undergraduate					
1.	ITC-302 (Section A)	Prof. Dr. Mir. Sajjad Hussain Talpur	4(3-1)	1	4
2	ITC-302 (Section B)	Mr. Rahib Talpur	4(3-1)	1	4
3.	ITC-304	Ms. Rabia Memon	4(3-1)	2	8
4	ITC-306	Dr. Erum Saba	3(2-1)	2	6
5.	ITC-402	Mr. Zeeshan Nizamani	3(2-1)	2	6
6.	ITC-404	Ms. Saima Tunio	3(2-1)	2	6
7.	ITC-406	Mr. Noor Nabi	3(2-1)	2	6
8.	ITC-408	Dr. Muhammad Yaqoob Koondhar	2(2-0)	1	2
6.	ITC-408	Ms. Farah Naveen	2(2-0)	1	2
7.	ITC-410	Prof. Dr. Pinial Khan Butt	2(2-0)	2	4

8.	ITC-412	Dr. Ghulam Ali Rahu	3(3-0)	2	6
8	ITC-502	Dr. Suhni Abbasi	3(2-1)	2	6
9.	ITC-504	Mr. Suhrab Thaheem	3(2-1)	2	6
10.	ITC-506	Mr. Noor Nabi	3(2-1)	2	6
11	ITC-508	Mr. Rahib Talpur (Section A)	3(2-1)	1	3
	ITC-508	Mr. Tasaduq	3(2-1)	1	3
11.	ITC-510	Dr. Kavita Tabbasum	3(3-0)	2	6
12.	ITC-512	Prof. Dr. Mukhtiar Memon	3(3-0)	2	6
13.	ITC-602	Ms. Saima Shaikh	3(3-0)	2	6
14.	ITC-604	Dr. Muhammad Yaqoob Koondhar	3(3-0)	2	6
15.	ITC-606	Dr. Arif Hussain Magsi	3(2-1)	2	6
16.	CS-302	Mr. Rahib Talpur	4(3-1)	1	4
17.	CS-304	Ms. Rabia Memon	4(3-1)	1	4
18.	CS-306	Dr. Kavita Tabbasum	3(2-1)	1	3
19.	CS-402	Ms. Saima Shaikh	3(2-1)	1	3
20.	CS-404	Prof. Dr. Mubeena Pathan	3 (2-1)	1	3
21	CS-406	Mr. Amir Bangash	3 (2-1)	1	3
22	CS-408	Mr. Irfan Shahani	2 (2-0)	1	2
23	CS-410	Ms. Farah Naveen	2 (2-0)	1	2
24	CS-412	Ms. Naina Oad	3 (3-0)	1	3
25	CS-502	Dr. Ghulam Ali Rahu	3(2-1)	1	3
26	CS-504	Mr. Suhrab Thaheem	4(3-1)	1	4
27	CS-506	Mr. Irfan Soomro	3(3-0)	1	3
29	CS-508	Mr. Amir Bangash	3(3-0)	1	3
30	CS-602	Mr. Zeeshan Nizamani	3(3-0)	1	3
31	CS-604	Prof. Dr. Mubeena Pathan	3(3-0)	1	3
32	CS-608	Dr. Suhni Abbasi	3(3-0)	1	3
33	SE-302	Ms. Naina Oad	4(3-1)	1	4
34	SE-304	Mr. Zafar Bhutto	4(3-1)	1	4
35	SE-306	Dr. Erum Saba	3(2-1)	1	3
36	SE-402	Mr. Zeeshan Nizamani	3(2-1)	1	3
37	SE-404	Ms. Saima Shaikh	3(3-0)	1	3
39	SE-406	Mr. Amir Bangash	3(2-1)	1	3
40	SE-408	Mr. Irfan Shahani	2(2-0)	1	2
41	SE-410	Ms. Farah Naveen	2(2-0)	1	2
42	SE-412	Dr. Arif Hussain Magsi	3(3-0)	1	3

42	SE-502	Mr. Irfan Shahani	3(3-0)	1	3
43	SE-506	Ramesh	3(3-0)	1	3
44	SE-504	Ms. Hina Chandio	3(3-0)	1	3
45	SE-508	Ms. Naina Oad	3(2-0)	1	3
46	SE-510	Mr. Amir Bangash	3(3-0)	1	3
47	SE-512	Ms. Farah Naveen	3(2-1)	1	3
48	SE-602	Dr. Zulfikar Ahmed Maher	3(2-1)	1	3
49	SE-604	Ms.Saima Tunio	3(2-1)	1	3
50	IT-214	Ms. Naina Oad	2(1-1)	1	2
Total Workload					210 Cr. Hrs
Workload for Present Faculty Members including visiting faculty					210 cr. Hrs

NEAC Approved Course Outline / Syllabus for BS (IT)

**Courses of BS (INFORMATION
TECHNOLOGY)**

B.S (IT) Part – I, II, III & IV

UNDER

SEMESTER SYSTEM

To be adopted from 2K24 Batch onwards

**INFORMATION TECHNOLOGY
CENTRE FACULTY OF AGRICULTURE
SOCIAL SCIENCES SINDH AGRICULTURE
UNIVERSITY, TANDO JAM**

Adaptation of HEC Graduation Education Policy-2023

**Revision/Amendment of Scheme of Information Technology according to UEP-2023 and NCEAC 2023
BSIT(Hons.) Four Years (8 semester) Degree Program**

HEC Undergraduate Policy 2023

List of Courses to be studied in Four Years (Eight Semester)

Semester-1					
	Pre-Req s	Course Title	Domain	Cr hr (Cont Hr)	Marks
ITC-301		Programming Fundamentals	Major	4 (3-1)	100-100
ITC-303		Application of Information & Communication Technologies	GER	3 (2-1)	100-100
BE-301		Natural Science (Applied Physics)	GER	3 (2-1)	100-100
ENG-301		Functional English	GER	3 (3-0)	100-0
IS/EB-301		Islamic Studies /Ethics(optional for non-Muslim students)	GER	2 (2-0)	100-0
Math-301		Quantitative Reasoning-1 (Calculus and Analytic Geometry)	GER	3 (3-0)	100-0
Total Cr Hrs				18 (15-3)	900
Semester 2					
ITC-302	PF	Object Oriented Programming	Major	4 (3-1)	100-100
ITC-304		Database Systems	Major	4 (3-1)	100-100
ITC-306		Digital Logic Design	Major	3 (2-1)	100-100
Math-302	CAG	Multivariable Calculus	I	3 (3-0)	100-0
Eng-302	ECC	Expository Writing	GER	3 (3-0)	100-0
PS-302		Ideology and Constitution of Pakistan	GER	2 (2-0)	100-0
Total Cr Hrs				19 (16-3)	900
Semester 3					
ITC-401	OOP	Data Structures	Major	4 (3-1)	100-100
ITC-403		Computer Networks	Major	3 (2-1)	100-100
ITC-405		Software Engineering	Major	3 (3-0)	100-0
Math-401	CAG	Linear Algebra	I	3 (3-0)	100-0
ITC-407	PF	Quantitative Reasoning-2 (Discrete Structures)	GER	3 (3-0)	100-0
ITC-409		Entrepreneurship	GER	2 (2-0)	100-0
Total Cr Hrs				18 (16-2)	800
Semester 4					

ITC-402	DLD	Computer Organization & Assembly Language	Major	3 (2-1)	100-100
ITC-404		Web Technologies	Major	3 (2-1)	100-100
ITC-406		DB Administration & Management	Major	3 (2-1)	100-100
ITC-408		Organizational Behaviors	GER	2 (2-0)	100-0
RS-402		Civics and Community Engagement	GER	2 (2-0)	100-0

ITC-410		Arts & Humanities (Professional Practices)	GER	2 (2-0)	100-0
ITC-412		Bioinformatics	I	3(3+0)	100-0
Total Cr Hrs				18 (15-3)	800
Semester 5					
ITC-501		Operating Systems	Major	3 (2-1)	100-100
STAT-501		Probability & Statistics	I	3 (3-0)	100-0
ITC-503		System & Network Administration	Major	3 (2-1)	100-100
ITC-505		Information Technology Infrastructure	Major	3 (2-1)	100-100
ITC-507		Mobile Application Development	Major	3 (2-1)	100-100
ITC-509		HCI & Computer Graphics	Major	3 (2-1)	100-100
Total Cr Hrs				18 (1-5)	1100
Semester 6					
ITC-502		Information Security	Major	3 (2-1)	100-100
ITC-504		Parallel & Distributed Computing	Major	3 (2-1)	100-100
ITC-506		Virtual Systems & Services	Major	3 (2-1)	100-100
ITC-508		Computer Architecture	Major	3 (2-1)	100-100
ITC-510		Software Requirement Engineering	Major	3 (2-1)	100-100
ITC-512		Network Security	Major	3 (2-1)	100-100
Total Cr Hrs				18 (12-6)	1200
Semester 7					
ITC-601	DS	Analysis of Algorithms	Major	3 (3-0)	100-0
ITC-603		Cloud Computing	Major	3 (2-1)	100-100
BE-601		Geographic Information System(GIS)	I	3 (2-1)	100-100
ENG-601	ECC	Technical & Business Writing	I	3 (3-0)	100-0
ITC-605		Final Year Project		3(0-3)	100-0
Total Cr Hrs				15 (10-5)	700
Semester 8					
ITC-602		Artificial Intelligence	Major	3 (2-1)	100-100
ITC-604		Cyber Security	Major	3 (2-1)	100-100
ITC-606		Internship/Field Experience		3(0-3)	0-100
Total Cr Hrs				9(4-5)	500
Grand Total Cr Hrs				133	

Course Name: Programming Fundamentals

Credit Hours: 4 (3-1)

Pre-requisites: None

Course Introduction:

This course provides fundamental concepts of programming to freshmen. The course is prerequisite to many other courses, therefore, students are strongly advised to cover all contents and try to achieve CLOs to the maximum possible level. The course may be taught as language independent. Further, it is up to the university to choose any language for the practical/Lab purpose but that must be latest and market oriented.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Understand basic problem-solving steps and logic constructs	C2 (Understand)
CLO-2	Apply basic programming concepts	C3 (Apply)
CLO-3	Design and implement algorithms to solve real world problems	C3 (Solve)

Course Outline:

Introduction to problem solving, a brief review of Von-Neumann architecture, Introduction to programming, role of compiler and linker, introduction to algorithms, basic data types and variables, input/output constructs, arithmetic, comparison and logical operators, conditional statements and execution flow for conditional statements, repetitive statements and execution flow for repetitive statements, lists and their memory organization, multidimensional lists, introduction to modular programming, function definition and calling, stack rolling and unrolling, string and string operations, pointers/references, static and dynamic memory allocation, File I/O operations.

Reference Materials (or use any other standard and latest books):

1. Starting out with Programming Logic & Design, 4th Edition, Tony Gaddis,
2. The C Programming Language, 2nd Edition by Brian W. Kernighan, Dennis M. Ritchie
3. Object Oriented Programming in C++ by Robert Lafore
4. C How to Program, 7th Edition by Paul Deitel & Harvey Deitel
5. Problem Solving and Program Design in C++, 7th Edition by Jeri R. Hanly & Elliot B. Koffman

Course Name: Application to Information & Communication Technologies Credit Hours: 3 (2-1)

Pre-requisites: None

Course Introduction: This course is designed to provide an introduction to the key concepts and technologies used in the field of Information and Communication Technologies (ICTs) and their applications. It will cover a wide range of topics including computer networking, database systems, web development, programming, and mobile application development. The course will also introduce students to the latest trends in the field of ICTs and their applications in various industries, including education, finance, healthcare, security and communications.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Understand the importance of ICT in various fields and industries, such as business, healthcare, education, and entertainment.	C2 (Understand)
CLO-2	Understand emerging technologies and their impact on various fields and industries	C2 (Understand)
CLO-3	Apply data analytics tools to analyze and visualize data	C3 (Apply)
CLO-4	Analyze and evaluate different software applications	C4 (Analyze)

Course Outline: Introduction to Information and Communication Technologies Programming Concepts. Describing role of Computer Networking. Describing role of Database Systems. Explaining Web Development Process 80 WP No. 28-66th ACM-1Sep 2023. Facets of Mobile Application Development. Role of Cyber Security and its importance. Data Analytics tools and techniques. Introduction to Social media analysis. Emerging Technologies. Introduction to Artificial Intelligence and Machine Learning. Internet of Things. Cloud Computing. Blockchain and technologies for distributed ledgers. Introduction to Augmented Reality and Virtual Reality. Case studies of ICT in healthcare, business

Reference Materials:

1. "Discovering Computers 2022" by Misty E. Vermaat, Susan L. Sebok, Steven M. Freund, Jennifer T. Campbell, and Mark Frydenberg (2021)
2. "Fundamentals of Information Technology" by Alexis Leon and Mathews Leon (2015)
3. "Information Technology for Management: On-Demand Strategies for Performance, Growth, and Sustainability" by Efraim Turban, Linda Volonino, and Gregory R. Wood (2015)

Course Name: Applied
Physics Credit Hours: 3 (2-1)

Pre-requisites: None

Course Introduction:

The course introduces students with the basic concept of Physics and electronics. Students are also taught Physics laws and other associate topics to prepare them for the advanced level courses in this area. The focus of the course on electric force and its applications and related problems, conservation of charge, charge quantization, Electric fields due to point charge and lines of force and many other useful topics.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	To apply principles and concepts to analyze problems within specific core areas.	C2 (Apply)
CLO-2	Analyze and interpret quantitative results.	C2 (Analyse)
CLO-3	To collect and appropriately analyze data working independently and in collaboration with others.	C3 (Analyse)
CLO-4	Familiarity with current developments in physics.	C4 (Apply)

Course Outline: Electric force and its applications and related problems, conservation of charge, charge quantization, Electric fields due to point charge and lines of force. Ring of charge, Disk of charge, A point charge in an electric field, Dipole in a n electric field, The flux of vector field, The flux of electric field, Gauss' Law, Application of Gauss' Law, Spherically symmetric charge distribution, A charge isolated conductor, Electric potential energy, Electric potentials, Calculating the potential from the field and related problem Potential due to point and continuous charge distribution, Potential due to dipole, equipotential surfaces, Calculating the field from the potential , Electric current, Current density, Resistance, Resistivity and conductivity, Ohm's law and its applications, The Hall effect, The magnetic force on a current, The Bio-Savart law, Line of B, Two parallel conductors, Amperes' s Law, Solenoid, Toroid's, Faraday's experiments, Faraday's Law of Induction, Lenz's law, Motional emf, Induced electric field, Induced electric fields, The basic equation of electromagnetism, Induced Magnetic field, The displacement current, Reflection and Refraction of light waves, Total internal reflection, Two source interference, Double Slit interference, related problems, Interference from thin films, Diffraction and the wave theory, related problems, Single-Slit Diffraction, related problems, Polarization of electromagnetic waves, Polarizing sheets, related problems.

Reference Materials:

1. Fundamentals of Physics (Extended) Resnick and Walker
2. Narciso Garcia, Arthur Damask, Steven Schwarz., "Physics for Computer Science Students", Springer Verlag.

Course Name: Functional English

Credit Hours: 3 (3-0)

Pre-requisites: None

Course Introduction:

This is first course in English to the Bachelor of Science students and covers all the fundamental concept of English composition and comprehension. The course is designed in such a way that students can use this knowledge to further enhance their language skills in English. The course aims at enhancing students' skill and competence in communicating their ideas in writing and speaking in English language. It will primarily focus on four areas of language to help the students achieve proficiency in language use, develop skills in listening comprehension, improve reading efficiency, use the conventions of standard written English with skill and assertion, build-up vocabulary, and clearly and accurately reproduce specific data. It will illustrate the force and effectiveness of simple and direct English.

Course Outline:

Paragraph and Essay Writing, Descriptive Essays; Sentence Errors, Persuasive Writing; How to give presentations, Sentence Errors; Oral Presentations, Comparison and Contrast Essays, Dialogue Writing, Short Story Writing, Review Writing, Narrative Essays, Letter Writing

Reference Materials: (or use any other standard and latest books)

1. College Writing Skills with Readings, by John Langan, McGraw-Hill, 5th Edition.
2. A Textbook of English Prose and Structure by Arif Khattak, et al, GIKI Institute,

Course Name: Islamic Studies

Credit Hours: 2 (2-0)

Pre-requisites: None

Course Introduction:

To provide Basic information about Islamic Studies. To enhance understanding of the students regarding Islamic Civilization. History of Islam, understanding of the worship and its usefulness. The basic concept of Quran Pak: wisdom, patience, loyalty. The comparative analysis of Islam with other religions. The Concept and Value of Haqooq ul Ibad (Bandon Kay Haqooq) in Islam. What is The rights of people in Islamic Point of View. Islamic point of view about other religions.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	To further enhance the knowledge of Islam.	C2 (understand)
CLO-2	To understand the basic concept of Islam and Quran Pak.	C2 (understand)
CLO-3	To understand the concept of Haqooq ul ibad in the light of Quran	C3 (understand)
CLO-4	To know the importance of Islamic concept about other religions.	C4 (Apply)

Course Outline:

Basic Themes of Quran, Introduction to Sciences of Hadith, Introduction to Islamic Jurisprudence, Primary & Secondary Sources of Islamic Law, Makken & Madnian life of the Prophet, Islamic Economic System, Political theories, Social System of Islam. Definition of Akhlaq. The Most Important Characters mentioned in the Holy Qur'an and Sunnah, SIDQ (Truthfulness) Generosity Tawakkaul (trust on Allah) Patience Taqua (piety). Haqooq ul ibad in the light of Quran & Hadith - the important characteristic of Islamic Society.

Reference Materials:

1. Introduction to Islam by Dr Hamidullah, Papular Library Publishers Lahore
2. Principles of Islamic Jurisprudence by Ahmad Hassan, Islamic Research Institute, IIUI
3. Muslim Jurisprudence and the Quranic Law of Crimes, By Mir Waliullah, Islamic Books Services

Course Name: Calculus and Analytic Geometry

Credit Hours: 3 (3-0)

Pre-requisites: None

Course Introduction:

To provide foundation and basic ground for calculus and analytical geometry background.

Course Outline:

Limits and Continuity; Introduction to functions, Introduction to limits, Techniques of finding limits, Indeterminate forms of limits, Continuous and discontinuous functions and their applications, Differential calculus; Concept and idea of differentiation, Geometrical and Physical meaning of derivatives, Rules of differentiation, Techniques of differentiation, Rates of change, Tangents and Normals lines, Chain rule, implicit differentiation, linear approximation, Applications of differentiation; Extreme value functions, Mean value theorems, Maxima and Minima of a function for single-variable, Concavity, Integral calculus; Concept and idea of Integration, Indefinite Integrals, Techniques of integration, Riemann sums and Definite Integrals, Applications of definite integrals, Improper integral, Applications of Integration; Area under the curve, Analytical Geometry; Straight lines in R^3 , Equations for planes.

Reference Materials:

1. Calculus and Analytic Geometry by Kenneth W. Thomas.
2. Calculus by Stewart, James.
3. Calculus by Earl William Swokowski; Michael Olinick; Dennis Pence; Jeffery A. Cole

Course Name: Object Oriented

Programming Credit Hours:

4(3-1)

Pre-requisites: Programming Fundamentals

Course Introduction:

The course aims to focus on object-oriented concepts, analysis and software development. The basic concept of OOP is covered in this course.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Understand principles of object oriented paradigm.	C2 (understand)
CLO-2	Identify the objects & their relationships to build object oriented solution	C2 (understand)
CLO-3	Model a solution for a given problem using object oriented principles	C3 (Apply)
CLO-4	Examine an object oriented solution	C4 (Examine)

Course Outline:

Introduction to object oriented design, history and advantages of object oriented design, introduction to object oriented programming concepts, classes, objects, data encapsulation, constructors, destructors, access modifiers, const vs non-const functions, static data members & functions, function overloading, operator overloading, identification of classes and their relationships, composition, aggregation, inheritance, multiple inheritance, polymorphism, abstract classes and interfaces, generic programming concepts, function & class templates, standard template library, object streams, data and object serialization using object streams, exception handling.

Reference Materials:

1. Java: How to Program, 9th Edition by Paul Deitel
2. Beginning Java 2, 7th Edition by Ivor Horton
3. An Introduction to Object Oriented Programming with Java, 5th Edition by C. Thomas Wu
4. Starting Out with C++ from Control Structures to Objects, 9th Edition, Tony Gaddis
5. C++ How to Program, 10th Edition, Deitel & Deitel.
6. Object Oriented Programming in C++, 3rd Edition by Robert Lafore

Course Name: Database

System Credit Hours: 4 (3-1)

Pre-requisites: None

Course Introduction:

The course aims to introduce basic database concepts, different data models, data storage and retrieval techniques and database design techniques. The course primarily focuses on relational data model and DBMS concepts

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Explain fundamental database concepts.	C2 (Explain)
CLO-2	Design conceptual, logical and physical database schemas using different data models.	C5 (Design)
CLO-3	Identify functional dependencies and resolve database anomalies by normalizing database tables.	C2 (Identify)
CLO-4	Use Structured Query Language (SQL) for database definition and manipulation in any DBMS	C4 (Use)

Course Outline:

Basic database concepts, Database approach vs. file based system, database architecture, three level schema architecture, data independence, relational data model, attributes, schemas, tuples, domains, relation instances, keys of relations, integrity constraints, relational algebra, selection, projection, Cartesian product, types of joins, normalization, functional dependencies, normal forms, entity relationship model, entity sets, attributes, relationship, entity-relationship diagrams, Structured Query Language (SQL), Joins and subqueries in SQL, Grouping and aggregation in SQL, concurrency control, database backup and recovery, indexes, NoSQL systems.

Reference Materials:

1. Database Systems: A Practical Approach to Design, Implementation, and Management, 6th Edition by Thomas Connolly and Carolyn Begg
2. Database Systems: The Complete Book, 2nd Edition by Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer Widom
3. Database System Concepts, 6th Edition by Avi Silberschatz, Henry F. Korth and S. Sudarshan.
4. Database Management Systems, 3rd Edition by Raghu Ramakrishnan, Johannes Gehrke

Course Name: Digital Logic

Design Credit Hours: 3 (2-1)

Pre-requisites: None

Course Introduction:

The course introduces the concept of digital logic, gates and the digital circuits. Further, it focuses on the design and analysis combinational and sequential circuits. It also serves to familiarize the student with the logic design of basic computer hardware components.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Acquire knowledge related to the concepts, tools and techniques for the design of digital electronic circuits	C2 (Explain)
CLO-2	Demonstrate the skills to design and analyze both combinational and sequential circuits using a variety of techniques	C5 (Design)
CLO-3	Apply the acquired knowledge to simulate and implement small-scale digital circuits	C2 (Identify)
CLO-4	Understand the relationship between abstract logic characterizations and practical electrical implementations.	C4 (Use)

Course Outline:

Number Systems, Logic Gates, Boolean Algebra, Combination logic circuits and designs, Simplification Methods (K-Map, Quinn Mc-Cluskey method), Flip Flops and Latches, Asynchronous and Synchronous circuits, Counters, Shift Registers, Counters, Triggered devices & its types. Mealy machines and Moore machines. Binary Arithmetic and Arithmetic Circuits, Memory Elements, State Machines. Introduction Programmable Logic Devices (CPLD, FPGA) Lab Assignments using tools such as Verilog HDL/VHDL, MultiSim.

Reference Materials:

1. Digital Fundamentals by Floyd, 11/e.
2. Fundamental of Digital Logic with Verilog Design, Stephen Brown, 2/e

Course Name:
Multivariable Calculus
Credit Hours: 3 (3-0)

Pre-requisites: None

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Describe the functions of several variables and partial derivatives with applications to find extrema and saddle points.	C1 (Understand)
CLO-2	Apply the theory to calculate the gradients, area of surfaces and volumes of solids.	C3 (Apply)
CLO-3	Represent a given function into Fourier series and Fourier transform.	C2 (Identify)

Course Outline: The course introduces functions of several variables, partial differentiation with applications. Important quadric surfaces are included while students also become familiar with 3-dimensional cylindrical and spherical coordinate systems. Double and triple integration are included with applications to find areas and volumes. In the second part advanced topics in vector analysis like calculus of del operator, gradient, curl and divergence along with their physical interpretations are covered. The course also covers Fourier Series: periodic functions, Functions of any period P-2L, Even & odd functions, Half Range expansions and Fourier Transform.

Reference Materials:

1. Advance Engineering Mathematics Erwin Kreyszig Seven Edition
2. Calculus & Analytical Geometry Howard Anton Fifth
3. Calculus Thomas & Finney 1994

Course Name:

Expository Writing

Credit Hours: 3 (3-0)

Pre-requisites: Functional English

Course Introduction:

The course introduces students to the communications so they can effectively communicate their message. The course also covers how to make an effective presentation both written and verbal. Various modern techniques of communication and presentation skills are covered in this course. Further the course aims to enhance students' linguistic command, so they could communicate effectively in diversified socio-cultural situations; create larger stretches of interactive text in speech and writing; and identify and repair any instances of potential communication break-up.

Course Outline:

Principles of writing good English, understanding the composition process: writing clearly; words, sentence and paragraphs; Comprehension and expression; Use of grammar and punctuation. Process of writing, observing, audience collecting, composing, drafting and revising, persuasive writing, reading skills, listening skills and comprehension, skills for taking notes in class, skills for exams; Business communications; planning messages, writing concise but with impact. Letter formats, mechanics of business, letter writing, letters, memo and applications, summaries, proposals, writing resumes, styles and formats, oral communications, verbal and non-verbal communication, conducting meetings, small group communication, taking minutes. Presentation skills; presentation strategies, defining the objective, scope and audience of the presentation, material gathering material organization strategies, time management, opening and concluding, use of audio-visual aids, delivery and presentation.

Reference Materials:

1. Practical Business English, Collen Vawdrey, 1993, ISBN = 0256192740
2. Effective Communication Skills: The Foundations for Change, John Nielsen, 2008, ISBN = 1453506748
3. College Writing Skills with Readings, by John Langan, McGraw-Hill, 5th Edition.
4. A Textbook of English Prose and Structure by Arif Khattak, et al, GIKI Institute, 2000

Course Name: Ideology and Constitution of Pakistan

Credit Hours: 2 (2-0)

Pre-requisites: None

Course Introduction:

Pakistan studies is an important course at this university in which students study about their motherland. The following are the specific objective of the course

- To develop vision of Historical Perspective, Government, Politics, Contemporary Pakistan, ideological background of Pakistan.
- To study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	To educate students about the history of Pakistan	
CLO-2	To educate student about the various pillar of the state	
CLO-3	To educate student Government and politics	

Course Outline:

Historical background of Pakistan: Muslim society in Indo-Pakistan, the movement led by the societies, the downfall of Islamic society, the establishment of British Raj- Causes and consequences. Political evolution of Muslims in the twentieth century: Sir Syed Ahmed Khan; Muslim League; Nehru; Allama Iqbal: Independence Movement; Lahore Resolution; Pakistan culture and society, Constitutional and Administrative issues, Pakistan and its geopolitical dimension, Pakistan and International Affairs, Pakistan and the challenges ahead.

Reference Materials:

1. The Emergence of Pakistan, Chaudary M., 1967
2. The making of Pakistan, Aziz. 1976
3. A Short History of Pakistan, I. H. Qureshi, ed., Karachi, 1988

Course Name: Data

Structures Credit

Hours: 4 (3-1)

Pre-requisites: Programming Fundamentals

Course Introduction:

The course is designed to teach students structures and schemes, which allow them to write programmer to efficiently manipulate, store, and retrieve data. Students are exposed to the concepts of time and space complexity of computer programs.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Implement various data structures and their algorithms and apply them in implementing simple applications	C3 (Apply)
CLO-2	Analyze simple algorithms and determine their complexities.	C5 (Analyze)
CLO-3	Apply the knowledge of data structure to other application domains	C3 (Apply)
CLO-4	Design new data structures and algorithms to solve problems.	C6 (Design)

Course Outline:

Abstract data types, complexity analysis, Big Oh notation, Stacks (linked lists and array implementations), Recursion and analysing recursive algorithms, divide and conquer algorithms, Sorting algorithms (selection, insertion, merge, quick, bubble, heap, shell, radix, bucket), queue, dequeuer, priority queues (linked and array implementations of queues), linked list & its various types, sorted linked list, searching an unsorted array, binary search for sorted arrays, hashing and indexing, open addressing and chaining, trees and tree traversals, binary search trees, heaps, M-way tress, balanced trees, graphs, breadth-first and depth-first traversal, topological order, shortest path, adjacency matrix and adjacency list implementations, memory management and garbage collection.

Reference Materials: (or use any other standard and latest books)

1. Data Structures and Algorithm Analysis in Java by Mark A. Weiss
 2. Data Structures and Abstractions with Java by Frank M. Carrano & Timothy M. Henry
 3. Data Structures and Algorithms in C++ by Adam Drozdek
 4. Data Structures and Algorithm Analysis in C++ by Mark Allen Weiss
- Java Software Structures: Designing and Using Data Structures by John Lewis and Joseph

Chas

Course Name: Computer Networks

Credit Hours: 3 (2-1)

Pre-requisites: None

Course Introduction:

This course introduces the basic concept of computer network to the students. Network layers, Network models (OSI, TCP/IP) and protocol standards are part of the course.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Describe the key terminologies and technologies of computer networks	C2 (Describe)
CLO-2	Explain the services and functions provided by each layer in the Internet protocol stack.	C2 (Explain)
CLO-3	Identify various internetworking devices and protocols and their functions in a networking	C4 (Identify)
CLO-4	Analyze working and performance of key technologies, algorithms and protocols	C4 (Analyze)
CLO-5	Build Computer Network on various Topologies	P3 (Build)

Course Outline:

Introduction and protocols architecture, basic concepts of networking, network topologies, layered architecture, physical layer functionality, data link layer functionality, multiple access techniques, circuit switching and packet switching, LAN technologies, wireless networks, MAC addressing, networking devices, network layer protocols, IPv4 and IPv6, IP addressing, sub netting, CIDR, routing protocols, transport layer protocols, ports and sockets, connection establishment, flow and congestion control, application layer protocols, latest trends in computer networks.

Reference Materials: (or use any other standard and latest books)

1. Computer Networking: A Top-Down Approach Featuring the Internet, 6th edition by James F. Kurose and Keith W. Ross
2. Computer Networks, 5th Edition by Andrew S. Tanenbaum
3. Data and Computer Communications, 10th Edition by William Stallings
4. Data Communication and Computer Networks, 5th Edition by Behrouz A. Forouzan

Course Name: Software Engineering

Credit Hours: 3 (3-0)

Pre-requisites: None

Course Introduction:

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Describe various software engineering processes and activates	C1 (Describe)
CLO-2	Apply the system modeling techniques to model a medium size software systems	C3 (Apply)
CLO-3	Apply software quality assurance and testing principles to medium size software systems	C4 (Apply)
CLO-4	Discuss key principles and common methods for software project management such as scheduling, size estimation, cost estimation and risk analysis	C2 (Discuss)

Course Outline:

Nature of Software, Overview of Software Engineering, Professional software development, Software engineering practice, Software process structure, Software process models, Agile software Development, Agile process models, Agile development techniques, Requirements engineering process, Functional and non-functional requirements, Context models, Interaction models, Structural models, behavioral models, model driven engineering, Architectural design, Design and implementation, UML diagrams, Design patterns, Software testing and quality assurance, Software evolution, Project management and project planning, configuration management, Software Process improvement

Reference Materials: (or use any other standard and latest books)

1. Software Engineering, Sommerville I., 10th Edition, Pearson Inc., 2014
2. Software Engineering, A Practitioner's Approach, Pressman R. S.& Maxim B. R., 8th Edition, McGraw-Hill, 2015

**Course Name: Linear
Algebra Credit Hours:
3 (3-0)**

Pre-requisites: Calculus and Analytical Geometry

Course Introduction:

To provide fundamentals of solution for system of linear equations, operations on system of equations, matrix properties, solutions and study of their properties.

Course Outline:

Algebra of linear transformations and matrices. determinants, rank, systems of equations, vector spaces, orthogonal transformations, linear dependence, linear Independence and bases, eigenvalues and eigenvectors, characteristic equations, Inner product space and quadratic forms.

Reference Materials: (or use any other standard and latest books)

1. Elementary Linear Algebra by Howard Anton
2. Linear Algebra and its Applications by Gibert Strang

Course Name: Discrete Structure

Credit Hours: 3 (3-0)

Pre-requisites: None

Course Introduction:

Introduces the foundations of discrete mathematics as they apply to Computer Science, focusing on providing a solid theoretical foundation for further work. Further, this course aims to develop understanding and appreciation of the finite nature inherent in most Computer Science problems and structures through study of combinatorial reasoning, abstract algebra, iterative procedures, predicate calculus, tree and graph structures. In this course more emphasis shall be given to statistical and probabilistic formulation with respect to computing aspects.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Understand the key concepts of Discrete Structures such as Sets, Permutations, Relations, Graphs and Trees etc.	C2 (Understand)
CLO-2	Apply formal logic proofs and/or informal, but rigorous, logical reasoning to real problems, such as predicting the behavior of software or solving problems such as puzzles.	C3 (Apply)
CLO-3	Apply discrete structures into other computing problems such as formal specification, verification, databases, artificial intelligence, and cryptography.	C3 (Apply)
CLO-4	Differentiate various discrete structures and their relevance within the context of computer science, in the areas of data structures and algorithms, in particular	C4 (Differentiate)

Course Outline:

Mathematical reasoning, propositional and predicate logic, rules of inference, proof by induction, proof by contraposition, proof by contradiction, proof by implication, set theory, relations, equivalence relations and partitions, partial orderings, recurrence relations, functions, mappings, function composition, inverse functions, recursive functions, Number Theory, sequences, series, counting, inclusion and exclusion principle, pigeonhole principle, permutations and combinations. Algorithms, Searching and Sorting Algorithms, elements of graph theory, planar graphs, graph coloring, Graph Algorithms, euler graph, Hamiltonian path, rooted trees, traversals.

Reference Materials: (or use any other standard and latest books)

1. Discrete Mathematics and Its Applications, 7th edition by Kenneth H. Rosen
2. Discrete Mathematics with Applications, 4th Edition by Susanna S. Epp
3. Discrete Mathematics, 7th edition by Richard Johnson Baugh

4. Discrete Mathematical Structures, 4th edition by Kolman, Busby & Ross
5. Discrete and Combinatorial Mathematics: An Applied Introduction by Ralph P. Grimaldi
6. Logic and Discrete Mathematics: A Computer Science Perspective by
Winifred Grassman

Course Name: *Entrepreneurship*

Credit Hours: 2 (2-0)

Pre-requisites: None

Course Introduction:

In this course, students will focus on learning the essential skills and strategies to successfully launch and grow a new business. Topics covered include market validation, product development, business planning and strategy, marketing and sales, funding and financial management, leadership and team building. The course will also delve into practical aspects of entrepreneurship, such as identifying and overcoming common challenges, building a supportive network, and developing a growth mindset. The course aims to equip students with the knowledge and skills needed to turn their entrepreneurial ideas into successful, thriving businesses.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Understand the basics of Entrepreneurship and its applications	C2 (Understand)
CLO-2	Apply entrepreneurial skills and tools specifically needed for entrepreneurial ventures	C3 (Apply)
CLO-3	Recognize contents of entrepreneurial process and MVP	C2 (Understand)
CLO-4	Develop and understand marketing plan, production plan, Financial Plan, Legal form of new venture, Intellectual Property.	C3(Apply)

Course Outline:

Introduction Course Outline, objectives, teaching plan, assessment method, Fundamentals of Entrepreneurship & Allocation of projects. Developing the Business Plan and twenty Principles of Entrepreneurship. Intrapreneurial culture. Corporate Versus Intrapreneurial Culture Comparison of Entrepreneurial, Intrapreneurial & Traditional Managers. The Individual Entrepreneur Entrepreneurial Feelings. Entrepreneurial Background and Characteristics. Role Models and Support Systems. Entrepreneurs Versus Inventors. Non-Entrepreneurial Profiles. Presentations of the “Startups case” and Global Competitiveness Report. Essentials of New Product Development. Examples of change in Product Design & Manufacturing. Guest Speaker Session. Development processes & Organizations. Identifying Customer Needs. Sustainable Manufacturing. Guest Speaker Session. Project Management Skills for Entrepreneurial projects. Export Procedures & Documentation. Project Presentations

Reference Materials:

1. Entrepreneurship (5th Edition), Robert D. Hisrich & Michael P. Peters. McGraw Hill Irwin.
2. Product Design & Development, Karl T Ulrich & Steven D. Eppinger

Course Name: Computer Organization and Assembly Language Credit Hours: 3 (2-1)

Pre-requisites: Digital Logic Design

Course Introduction:

The main objective of this course is to introduce the organization of computer systems and usage of assembly language for optimization and control. Emphasis should be given to expose the low-level logic employed for problem solving while using assembly language as a tool. At the end of the course the students should be capable of writing moderately complex assembly language subroutines and interfacing them to any high-level language.

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Acquire the basic knowledge of computer organization computer architecture and assembly language	C2 (Understand)
CLO-2	Understand the concepts of basic computer organization architecture, and assembly language techniques	C2 (Understand)
CLO-3	Solve the problems related to computer organization and assembly language	C3 (Apply)

Course Outline:

Introduction to computer systems: Information is bits + context, programs are translated by other programs into different forms, it pays to understand how compilation systems work, processors read and interpret instructions stored in memory, caches matter, storage devices form a hierarchy, the operating system manages the hardware, systems communicate with other systems using networks; Representing and manipulating information: information storage, integer representations, integer arithmetic, floating point; Machine-level representation of programs: a historical perspective, program encodings, data formats, accessing information, arithmetic and logical operations, control, procedures, array allocation and access, heterogeneous data structures, putting it together: understanding pointers, life in the real world: using the gdb debugger, out of-bounds memory references and buffer overflow, x86-64: extending ia32 to 64 bits, machine-level representations of floating-point programs; Processor architecture: the Y86 instruction set architecture, logic design and the Hardware Control Language (HCL), sequential Y86 implementations, general principles of pipelining, pipelined Y86 implementations

Reference Materials: (or use any other standard and latest books)

1. Computer System Architecture, M. Morris Mano, Latest Edition,
2. Assembly Language Programming for Intel- Computer, Latest Edition
3. Computer Systems: A Programmer's Perspective, 3/E (CS:APP3e), Randal E. Bryant and

David R.O' Hallaron, Carnegie Mellon University

4. Robert Britton, MIPS Assembly Language Programming, Latest Edition,

Course Name: Web Technologies

Credit Hours: 3 (2-1)

Prerequisites:

Course Learning Outcomes (CLOs):

At the end of the course the students will be able to:

Course Content:

Introduction to Web Applications, TCP/IP Application Services. Web Servers: Basic Operation, Virtual hosting, Chunked transfers, Caching support, Extensibility. SGML, HTML5, CSS3. XML Languages and Applications: Core XML, XHTML, XHTML MP. Web Service: SOAP, REST, WML, XSL. Web Services: Operations, Processing HTTP Requests, Processing HTTP Responses, Cookie Coordination, Privacy and P3P, Complex HTTP Interactions, Dynamic Content Delivery. Server Configuration. Server Security. Web Browsers Architecture and Processes. Active Browser Pages: JavaScript, DHTML, AJAX. JSON, Approaches to Web Application Development. Programing in any Scripting language. Search Technologies. Search Engine Optimization. XML Query Language, Semantic Web, Future Web Application Framework.

Reference Materials:

1. Web Application Architecture: Principles, protocols and practices by Leon Shklar and Richard Rosen, Wiley; 2nd Edition (May 5, 2009). ISBN-10:047051860X
2. Web Technologies: A Computer Science Perspective by Jeffrey C. Jackson, Prentice Hall; 1st Edition (August 27, 2006). ISBN-10:0131856030

Representative NCEAC files have been included in this dossier for evaluation purposes.

Complete curriculum for all courses offered under the BSIT, BSCS, and BSSE program can be viewed at the repository https://sau.edu.pk/itc_course_repository.php

Teaching Plan

INFORMATION TECHNOLOGY

Sindh Agriculture University,



CENTRE

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Teaching Plan

Department: **Information Technology Centre**

Program: **Bachelor of Science
(Information Technology)**

Name of Teacher: Prof. Dr. Mir Sajjad Hussain
Talpur

Course Title: **Object Oriented Programming**

Credit Hours: **4(3+1)**

Course Code: ITC-302

Semester: **2nd**

Batch: **2k26-IT**

Start of Classes: **13-07-2026**

End of classes: **16-11-2026**

Upon successful completion of the course, the student will be able to:

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Understand principles of the object-oriented paradigm.	C2 (Understand)

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-2	Identify objects and their relationships to build an object-oriented solution.	C3 (Apply)
CLO-3	Model a solution for a given problem using object-oriented principles.	C3 (Apply)
CLO-4	Examine an object-oriented solution.	C4 (Analyze)

Week	Theory Topic	CLO	No. of lectures
Week 01	Course orientation; evolution, history, and advantages of object-oriented design	1	1
	Procedural programming versus object-oriented programming	1	1
	Fundamental OOP concepts: classes, objects, messages, abstraction, and encapsulation	1	1
Week 02	Defining classes and creating objects in C++	1	1
	Data members, member functions, object state, and behavior	1	1
	Encapsulation, information hiding, and access modifiers	1	1
Week 03	Constructors: default, parameterized, and copy constructors	1	1
	Constructor overloading and member-initializer lists	1	1
	Destructors, object lifetime, and resource cleanup	1	1

Week	Theory Topic	CLO	No. of lectures
Week 04	Const objects and const versus non-const member functions	1	1
	Static data members and static member functions	1	1
	Function overloading, default arguments, and inline member functions	1	1
Week 05	Principles, rules, and limitations of operator overloading	3	1
	Overloading unary operators and increment/decrement operators	3	1
	Overloading binary operators and user-defined type conversions	3	1
Week 06	Problem analysis: identifying candidate classes and objects	2	1
	Assigning responsibilities, attributes, and behaviors to classes	2	1
	Associations, multiplicity, and relationship modeling	2	1
Week 07	Composition and aggregation: concepts and design choices	2	1
	Implementing composition and aggregation in C++	3	1
	Case study: transforming a problem statement into a class model	2	1
Week 08	Inheritance: base and derived classes	3	1
	Inheritance access modes; constructor and destructor execution order	3	1
	Single, multilevel, and hierarchical inheritance	3	1
Week 09	Multiple inheritance and ambiguity resolution	3	1
	Diamond problem and virtual base classes	3	1

Week	Theory Topic	CLO	No. of lectures
	Inheritance design guidelines and review exercises	4	1
Week 10	Compile-time and run-time polymorphism	3	1
	Virtual functions, overriding, and dynamic binding	3	1
	Base-class pointers/references and virtual destructors	3	1
Week 11	Pure virtual functions and abstract classes	3	1
	Interfaces and interface-based design in C++	3	1
	Polymorphic case study using abstract classes and interfaces	3	1
Week 12	Generic programming concepts and motivation	3	1
	Function templates, overloading, and specialization	3	1
	Class templates and template parameters	3	1
Week 13	Standard Template Library architecture: containers, iterators, and algorithms	3	1
	Sequence and associative containers	3	1
	Using iterators and standard algorithms to solve problems	3	1
Week 14	Stream hierarchy and formatted console/file input-output	3	1
	Text and binary object streams	3	1
	Data and object serialization/deserialization using streams	3	1

Week	Theory Topic	CLO	No. of lectures
Week 15	Exception handling: try, throw, and catch	4	1
	Exception propagation, standard exceptions, and user-defined exceptions	4	1
	Exception-safe design, resource management, and review quiz	4	1
Week 16	Examining object-oriented solutions: cohesion, coupling, and responsibility assignment	4	1
	Code review and refactoring of an object-oriented solution	4	1
	Comprehensive course review and project presentations	4	1

Week No.	Lab Topic	CLO	No. of Sessions
Week 01	Setting up a C++ IDE; creating the first class and object	1	1
Week 02	Encapsulation practice: access modifiers, getters/setters, and object interaction	1	1
Week 03	Constructors, destructor, copy constructor, and object-lifecycle exercises	1	1
Week 04	Const/static members and function-overloading exercises	1	1
Week 05	Unary and binary operator-overloading exercises	3	1
Week 06	Class identification and UML class diagram from a problem statement	2	1
Week 07	Implementing associations, composition, and aggregation	2	1
Week 08	Single, multilevel, and hierarchical inheritance exercises	3	1
Week 09	Multiple inheritance, ambiguity resolution, and virtual base classes	3	1
Week 10	Run-time polymorphism using virtual functions and base-class pointers	3	1
Week 11	Abstract classes, interfaces, and a polymorphic application	3	1
Week 12	Function-template and class-template exercises	3	1
Week 13	STL containers, iterators, and algorithms	3	1

Week No.	Lab Topic	CLO	No. of Sessions
Week 14	File streams and object serialization/deserialization	3	1
Week 15	Exception handling with standard and user-defined exceptions	4	1
Week 16	Comprehensive mini-project: design, implement, and examine an OO solution (lab exam)	4	1

Signature of Teacher:

Dated:

INFORMATION TECHNOLOGY CENTRE



Sindh Agriculture University, Tandojam

Teaching Plan

Department: **Information Technology Centre**

Program: **Bachelor of Science**

(Information Technology)

Name of Teacher: Dr. Mukhtiar Memon

Course Title: **IT Project Management**

Credit Hours: **3(3+0)**

Course Code: **ITC-512**

Semester: 6th

Batch: **2K23-IT**

Start of Classes: **13-07-2026**

End of classes: **16-11-2026**

Upon successful completion of the course, the student will be able to:

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Explain the concepts, principles, frameworks, and life cycle of IT project management.	C2 – Understand
CLO-2	Develop project planning artifacts including project charter, scope statement, WBS, schedules, and budgets.	C6 – Create

CLO-3	Apply project management techniques for quality, communication, resource, risk, and cost management.	C3 – Apply
CLO-4	Evaluate Agile and traditional project management approaches for software and IT projects.	C5 – Evaluate

Week	Theory Topic	CLO	No. of lectures
Week 01	Course Introduction and Overview of IT Project Management	1	1
	Projects vs Operations	1	1
	- Introduction to IT Projects - Characteristics of IT Projects	1	1
Week 02	- Why IT Projects Fail - Role of the Project Manager	1	1
	- Project Success Criteria - Project Triple Constraint	1	1
	Project Life Cycle	1	1
Week 03	Project Management Process Groups	1	1
	Project Management Knowledge Areas	1	1
	Overview of PMBOK Framework	1	1
Week 04	Course Project Introduction	1	1
	Organizational Structures and Their Impact on Projects	1	1
	Stakeholders and Project Environment	1	1

Week 05	• Project Initiation Concepts	2	1
	• Project Selection Method	2	1
	• Business Case Development	2	1
Week 06	• Feasibility Analysis	2	1
	• Project Charter Development	2	1
	• Stakeholder Identification and Analysis	2	1
Week 07	• Introduction to Scope Management	2	1
	• Requirements Gathering Techniques	2	1
	• Scope Definition	2	1
Week 08	• Project Scope Statement	2	1
	• Work Breakdown Structure (WBS)	2	1
	• Scope Validation, Scope Control and Scope Creep	2	1
Week 09	• Project Scheduling Fundamentals	2	1
	• Activity Definition and Sequencing	2	1
	• Dependency Relationships	2	1
Week 10	• Gantt Charts and Milestones	2	1
	• Critical Path Method (CPM)	2	1
	• Program Evaluation and Review Technique (PERT)	2	1

Week 11	• Resource Planning	3	1
	• Resource Allocation and Resource Leveling	3	1
	• Mid-Term Review / Assessment	1, 2	1
Week 12	• Project Cost Management	3	1
	• Cost Estimation Techniques	3	1
	• Budget Development and Cost Baseline	3	1
Week 13	• Earned Value Management (EVM)	3	1
	• Project Quality Management	3	1
	• Quality Assurance and Quality Control	3	1
Week 14	• Project Communication Management	3	1
	• Project Documentation and Reporting	3	1
	• Risk Identification, Analysis and Response Planning	3	1
Week 15	• Introduction to Agile Project Management	4	1
	• Agile Manifesto and Agile Principles	4	1
	• Scrum Framework: Roles, Events and Artifacts	4	1
Week 16	• Agile Planning, Sprint Management and Backlogs	4	1
	• Project Monitoring, Control and Closure	4	1
	• Emerging Trends in IT Project Management and Course Review	4	1

Signature of Teacher:

Dated:



INFORMATION TECHNOLOGY

Sindh Agriculture University,

Teaching Plan



CENTRE
Tandojam

Department: **Information Technology Centre**

Program: **Bachelor of Science (Computer Science)**

Name of Teacher: **Dr. Kavita Tabbassum**

Course Title: **Digital Logic Design**

Credit Hours: **3(2-1)**

Course Code: **CS-306**

Semester 2nd

Batch: **2k25-IT**

Start of Classes: **13-07-2026**

End of classes: **16-11-2026**

Upon successful completion of the course, the student will be able to:

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Understand digital systems, number systems (binary, octal, decimal, hexadecimal), and base conversions	Understand
CLO-2	Apply Boolean algebra, DeMorgan's theorems, and Karnaugh maps to simplify logic expressions	Apply
CLO-3	Design combinational circuits (adders, multiplexers, decoders) and verify using simulation	Create
CLO-4	Analyze sequential circuits, flip-flops, and timing diagrams; design state machines	Analyze
CLO-5	Design and implement registers, counters, and memory systems; introduce FPGA/CPLD programming	Create

Weekly Syllabus

Week	Theory Topic	CLO(s)	No. Of Lectures
Wk 1	Introduction to Digital Systems, Analog vs Digital, Binary Number System	CLO-1	2

Wk 2	Number Systems (Binary, Octal, Decimal, Hexadecimal), Base Conversion	CLO-1	2
Wk 3	Binary Arithmetic, 1's & 2's Complement, Signed Numbers	CLO-1	2
Wk 4	Logic Gates (AND, OR, NOT, NAND, NOR, XOR, XNOR), Universal Gates	CLO-1, CLO-2	2
Wk 5	Boolean Algebra, DeMorgan's Theorems	CLO-2	2
Wk 6	Karnaugh Maps (2, 3, and 4 Variables)	CLO-2	2
Wk 7	Quine–McCluskey Method	CLO-2	2
Wk 8	Combinational Circuits: Half Adder, Full Adder, Half Subtractor, Full Subtractor	CLO-3	2
Wk 9	Multiplexers, Demultiplexers, Encoders, Decoders	CLO-3	2
Wk 10	Latches (SR, D) and Flip-Flops (SR, JK, D, T)	CLO-4	2
Wk 11	Sequential Circuits and Timing Diagrams	CLO-4	2
Wk 12	Registers and Shift Registers	CLO-5	2
Wk 13	Asynchronous and Synchronous Counters	CLO-5	2
Wk 14	Mealy and Moore Machines, State Machines	CLO-4, CLO-5	2
Wk 15	Memory Elements (ROM, RAM, EEPROM), Programmable Logic Devices (CPLD, FPGA)	CLO-5	2
Wk 16	Course Review and Digital System Design Project	CLO-1, CLO-2, CLO-3, CLO-4, CLO-5	2

Week	Lab Activity	No. Of Labs
Wk 1	Introduction to MultiSim, Logisim Evolution, Digital ICs	1
Wk 2	Binary and Hexadecimal Conversions	1
Wk 3	Binary Arithmetic using MultiSim	1
Wk 4	Verification of Logic Gates using ICs	1
Wk 5	Simplification using Boolean Laws	1
Wk 6	K-Map Problems	1
Wk 7	Logic Simplification using Software	1
Wk 8	Design of Adders/Subtractors	1
Wk 9	Design of Multiplexer and Decoder Circuits	1
Wk 10	Simulation of Flip-Flops	1
Wk 11	Flip-Flop Timing Analysis	1
Wk 12	Shift Register Implementation	1
Wk 13	Ripple and Synchronous Counter Design	1
Wk 14	State Diagram Simulation	1
Wk 15	FPGA Introduction using Verilog	1

Wk 16	Mini Project Demonstration	1
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	Signature of Teacher: _____	Dated: _____
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INFORMATION TECHNOLOGY

Sindh Agriculture University,



CENTRE
Tandojam

Teaching Plan

Department: **Information Technology Centre**

Program: **Bachelor of Science**

(Computer Science)

Name of Teacher: Farah Naveen Issani

Course Title: **Professional Practices**

Credit Hours: **2(2+0)**

Course Code: **CS-410**

Semester: 2nd

Batch: 2k24-CS

Start of Classes: 13-07-2026

End of classes: 16-11-2026

Upon successful completion of the course, the student will be able to:

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Identify and use appropriate sources of information when developing professional documents.	C1 (Describe)
CLO-2	Demonstrate effective team membership skills and contribute collaboratively within diverse team environment.	C2 (Analysis)
CLO-3	Articulate and reflect on the industry expectations of competence and conduct in engineering and computing Profession	C3 (Understand)

Week	Theory Topic	CLO	No. of lectures
Week 01	Introduction to Professional Practices	1	1
	Introduction to Historical, social, and economic context of computing	1	1
Week 02	Introduction to software engineering, computer science and IT in professional Practices	1	1
	Definition of computing(SE , CS, and IT)	1	1
Week 03	Professional activities	1	1
	Professional societies	2	1

Week 04	Professional Ethics	2	1
	Professional competency and life long learning	2	1
Week 05	Uses, Misuse and risk of software	2	1
	Information security and Privacy	2	1
Week 06	Business practices and the economics of software	2	1
	Intellectual property and Software law(cyber law)	2	1
Week 07	Social responsibilities	2	1
	Software related contracts	2	1
Week 08	Software House Organization	2	1
	Intellectual property Rights	2	1
Week 09	The framework of Employee relation law and changing management practices	2	1
	Human Resource Management	2	1

Week 10	IT and Human resources Management	3	1
	Health and safety at work	3	1
Week 11	Software Liability	3	1
	Liability and Practices	3	1
Week 12	Computer Misuse and the criminal law	3	1
	Regulation and control of personal information	3	1
Week 13	Overview of the British computer society code of conduct	3	1
	IEEE code of Ethics	3	1
Week 14	ACM code of Ethics and professional conduct	3	1
	ACM/IEEE software engineering code of Ethics and professional conduct	3	1
Week 15	Accountability and Auditing	3	1
	Social Application of Ethics	3	1
Week 16	Course Review	1	1
	Course Review	2	1

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Week No.	Lab Topic	CLO	No. of Sessions
Week 01	Introduction to DBMS software and tools (installation of MySQL/PostgreSQL, SQL client, Workbench)	1	1

Week 02	Creating and managing databases; exploring the DBMS environment and system catalog	1	1
Week 03	ER diagram design using a modeling tool - case study	2	1
Week 04	Converting an ER diagram into a relational schema	2	1
Week 05	DDL practice - CREATE TABLE with primary key, foreign key, and CHECK constraints	2	1
Week 06	DDL practice - ALTER and DROP; enforcing integrity constraints	2	1
Week 07	DML practice - INSERT, UPDATE, DELETE statements	4	1
Week 08	SELECT queries - filtering with WHERE, sorting with ORDER BY	4	1
Week 09	SELECT queries - operators, pattern matching (LIKE), NULL handling	4	1
Week 10	Joins in SQL - INNER JOIN and self-join exercises	4	1
Week 11	Joins in SQL - OUTER JOIN (LEFT, RIGHT, FULL) exercises	4	1
Week 12	Subqueries - nested and correlated subquery exercises	4	1
Week 13	Grouping and aggregation - GROUP BY, HAVING, aggregate functions	4	1

Week 14	Identifying functional dependencies and normalizing	3	1
Week 15	Views, indexes, and basic query optimization practice	2	1
Week 16	Comprehensive mini-project - design, normalize, and implement a small database application (lab exam)	2	1

Signature of Teacher:

Dated:



Teaching Plan

INFORMATION TECHNOLOGY

Sindh Agriculture University,



CENTRE

Tandojam

Department: **Information Technology Centre**

Program: **Bachelor of Science in
Information Technology**

Name of Teacher: Prof. Dr. Pinal Khan Butt

Course Title: **Professional Practices**

Credit Hours: 3(3+0)

Course Code: **ITC-604**

Semester: 8th

Batch: 2K22

Start of Classes: **13-07-2026**

End of classes: **16-11-2026**

Upon successful completion of the course, the student will be able to:

CLO No.	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Explain the historical, social, economic, legal, and ethical foundations of computing disciplines, including Software Engineering, Computer Science, and Information Technology, and describe the roles and responsibilities of computing professionals.	(C2 – Understand)
CLO-2	Apply professional codes of ethics, legal principles, intellectual property rights, information security, privacy regulations, and software-related laws to analyze and resolve issues encountered in computing and software engineering practices.	(C3 – Apply)
CLO-3	Analyze the social, organizational, and legal implications of software development, including software liability, software contracts, human resource management, workplace health and safety, accountability, auditing, and ethical decision-making in professional computing environments.	(C4 – Analyze)

Week	Theory Topic	CLO	No. of lectures
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Week 01	Course Introduction, Overview and Assessment	1	1
	Historical Evolution of Computing	1	1
	Social and Economic Impact of Computing	1	1
Week 02	Introduction to Computing Disciplines	1	1
	Computer Science: Scope and Professional Activities	1	1
	Software Engineering: Scope and Professional Activities	1	1
Week 03	Information Technology: Scope and Professional Activities	1	1
	Comparison of CS, SE and IT	1	1
	Professional Competency and Career Development	1	1
Week 04	Lifelong Learning in Computing Profession	1	1
	Professional Societies (IEEE, ACM, BCS)	1	1
	Roles and Responsibilities of Computing Professionals	1	1
Week 05	Introduction to Professional Ethics	2	1
	Ethical Decision Making in Computing	2	1
	Overview of IEEE Code of Ethics	2	1
Week 06	ACM Code of Ethics and Professional Conduct	2	1
	ACM/IEEE Software Engineering Code of Ethics	2	1
	British Computer Society (BCS) Code of Conduct	2	1
Week 07	Uses, Misuses and Risks of Software	2	1
	Information Security Fundamentals	2	1

	Data Privacy and Confidentiality	2	1
Week 08	Intellectual Property Rights (IPR)	2	1
	Copyrights, Patents, Trademarks and Licensing	2	1
	Software Law and Cyber Law	2	1
Week 09	Computer Misuse and Criminal Law	2	1
	Regulation and Control of Personal Information	2	1
	Business Practices in Software Industry	2	1
Week 10	Economics of Software Development	2	1
	Software Related Contracts	2	1
	Software Licensing and Legal Agreements	2	1
Week 11	Software House Organization	3	1
	Software Development Teams and Organizational Structure	3	1
	Human Resource Management in IT Organizations	3	1
Week 12	Employee Relations Law	3	1
	Changing Management Practices in IT Industry	3	1
	Health and Safety at Work	3	1
Week 13	Software Liability	3	1
	Liability in Software Engineering Practice	3	1
	Accountability in Software Projects	3	1
Week 14	Auditing in Software Organizations	3	1

	Professional Responsibility in Software Development	3	1
	Ethical Issues in Emerging Technologies (AI, Cloud, IoT, Big Data)	3	1
Week 15	Social Applications of Ethics	3	1
	Case Study: Cybercrime and Privacy Violations	3	1
	Case Study: Intellectual Property and Software Licensing	3	1
Week 16	Case Study: Professional Ethics and Legal Issues	3	1
	Integrated Review of Professional, Legal and Ethical Issues	3	1
	Comprehensive Course Review and CLO Assessment	3	1

Signature of Teacher:

Dated:

Representative Teaching Plan have been included in this dossier for evaluation purposes. Complete teaching plan for all courses offered under the BSIT, BSCS, and BSSE program can be viewed at the repository https://sau.edu.pk/itc_course_repository.php

Students Attendance

Attendance Sheet-2k22

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