

UNIVERSITY OF SWAT

Khyber Pakhtunkhwa Pakistan



Scheme of Studies for Associate Degree Program 2020 and onward

Prepared by:
Mr. Muhammad Riaz
Controller of Examinations
Email: controller@uswat.edu.pk
University of Swat

Finalized by:
Mr. Khurshid Alam
Deputy Registrar Academics
Email: khurshid@uswat.edu.pk
University of Swat

1. Introduction

The Higher Education Commission of Pakistan notified phasing out BA/BSc (Annual System) from December 31, 2018 and introduced Two-Year Associate Degree (04 Semesters) to be offered in all the affiliated colleges of public sector Universities of Pakistan.

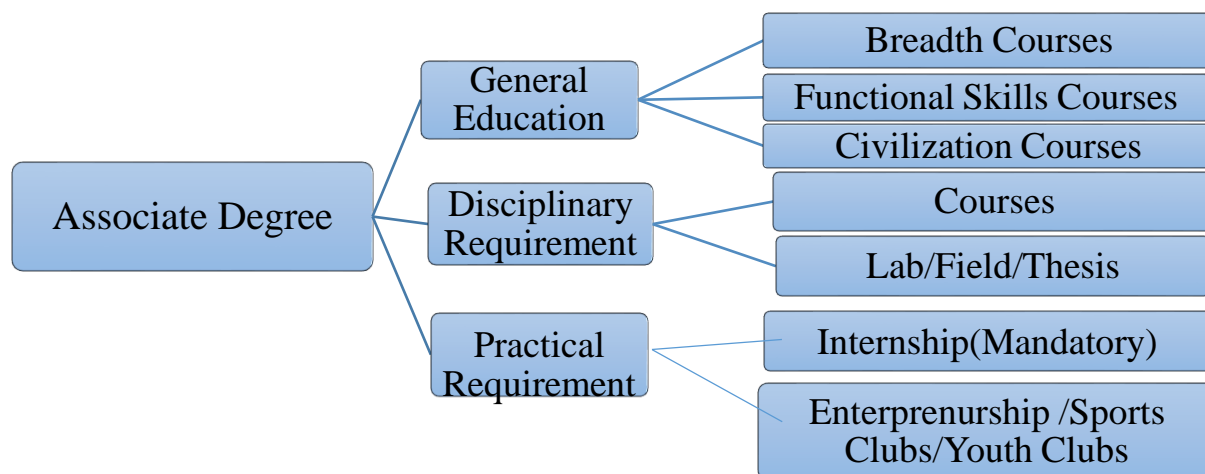
Associate Degree shall be offered in the affiliated Non-BS Colleges and Sub-Campuses of University of Swat and shall be equivalent to 14 years schooling. A student after successful completion of Associate Degree shall be admitted in BS 5th Semester upon the availability of seat(s) and eligibility criteria to be determined by the University for each Discipline/ Degree program. A student admitted in BS 5th semester shall be awarded BS (04 Semesters) Degree by passing courses of at least 60 credits and earning overall at least 2.00 CGPA. The nomenclature of degree shall be Associate Degree as per Higher Education Commission under graduate policy 2020.

2. Commencement

The University of Swat will start the Two-Year Associate Degree (AD) from the Fall Semester 2020 in all the Non-BS Colleges and later on in Sub-campuses and constituent colleges of University of Swat.

3. Schematic Representation

The following schematic representation has been prepared as per HEC Undergraduate policy 2020.



4. Overview

A student shall be required to complete a minimum of 60 credit hours out of which General Education (Gen Ed) courses shall be 13 courses of 03 credit hours each and subject specific courses shall be 07 of 03 credit hours each (to be designed by the affiliating university).

General Education Courses shall be as:

Breadth Courses	Art & Humanities (AH)	02 courses of 03 credit hours each
	Social Sciences (SS)	02 courses of 03 credit hours each
	Natural Sciences (NS)	02 courses of 03 credit hours each
Functional Skills Courses	Expository Writing (EW)	03 courses of 03 credit hours each
	Quantitative Reasoning Course (QR)	02 courses of 03 credit hours each
Civilizational Courses	Pakistan Studies	01 course of 03 credit hours
	Islamiat/ Religious Studies	01 course of 03 credit hours
Disciplinary/Subject Specific Courses (including Thesis, Internship, Entrepreneurship)	to be developed by the affiliating University	07 courses of 03 credit hours each

5. Layout of Courses

Expository Reasoning (EW) (03 courses)	Cr. Hrs	Breadth	Cr Hrs	Practical Learning Requirement	
English-I (Functional)	03	A. Arts & Humanities (02 Courses)	03	Internship (Mandatory) (360 Hour)	Non-Credit
English-II (Communication Skills)	03	Introduction to History, History of Khyber Pakhtunkhwa / Islamic History/ Pashto/Urdu/ Law/Home Economics		Practical Learning Lab (PLL)	
English-III (Technical Writing & Presentation Skills)	03	B. Social Sciences (02 courses)	03	Participation in Extra-Curricular Activities a. Entrepreneurship b. Student’s Clubs c. Sports Clubs	Minimum 04 Hrs/week
		Introduction to Political Science/ Economics/Psychology/ Home Economics/ Principles of Sociology/ Health & Physical Education			
		C. Natural Sciences (02 Courses)	03		
		Physics/Chemistry/Biology/Geogra phy/Geology			
Civilizational (02 courses)	Cr Hrs	Quantitative Reasoning (02 courses)	Cr Hrs		
Pakistan Studies	03	Introduction to Computer/ ICT	2+1		
Islamiat or Religious Studies	03	Mathematics-I	03		
		Introduction to Statistics	03		

6. Template of Associate Degree as per HEC Undergraduate Policy 2020

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-III	Cr.Hrs
Expository writing -1	03	Expository writing -2	03	Expository writing -3	03	Art & Humanities-2	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Art & Humanities-1	03	Subject Specific Course-4	03
Civilization Course-1	03	Civilization Course-2	03	Subject Specific Course-1	03	Subject Specific Course-5	03
Natural Science-1	03	Natural Science-2	03	Subject Specific Course-2	03	Subject Specific Course-6	03
Social Science-1	03	Social Science-2	03	Subject Specific Course-3	03	Subject Specific Course-7	03
Total Credit Hours							60

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
English-I (EW-1)	03	English-II (EW-2)	03	English-III (EW-3)	03	Art & Humanities-2	03
Maths-I (Algebra)/ Intro to Statistics (QR-1)	03	Intro.to Statistics/ Computer (QR-2)	03	Art & Humanities-1	03	Subject Specific Course-4	03
Pakistan Studies (CC-1)	03	Islamiat / Religious Studies (CC-2)	03	Subject Specific Course-1	03	Subject Specific Course-5	03
Phy/Bio/Chem / Geog (NS-1)	03	Phy/Bio/Chem/ Geog (NS-2)	03	Subject Specific Course-2	03	Subject Specific Course-6	03
Social Science-1	03	Social Science-2	03	Subject Specific Course-3	03	Subject Specific Course-7	03
Total Credit Hours							60

7. Eligibility Criteria

An applicant seeking admission in Associate Degree will be required to have passed the Higher Secondary School Certificate Examination (HSSC) or equivalent in at least second division.

8. Duration of Study

Duration of Associate Degree	02 Years
Semesters	04
Semester Duration	16-18 weeks for teaching and examinations
Course Load per semester	at least 15 credits
Average number of courses per semester	05 (not more than 3 courses/Lab per semester)

The Associate Degree will be equivalent to 14 years of schooling (Old BA/BSc Annual System)

Appendix-I

General Education Courses

Expository Writing		
English-I (Functional English)	Credit Hours:3(03+0)	Course Code: EW-1

General Education Courses

Objectives: To enhance language skills and develop critical thinking

Course Contents:

Basics of Grammar, Parts of speech and use of articles, Sentence structure, Active and passive voice, Practice in unified sentence, Analysis of phrase, clause and sentence structure, Transitive and intransitive verbs, Punctuation and spelling

Comprehension

Answers to questions on a given text

Discussion

General topics and every day conversation (topics for discussion to be at the discretion of the teacher keeping in view the level of students)

Listening

To be improved by showing documentaries/films carefully selected by subject teachers)

Translation skills

Urdu to English

Paragraph writing

Topics to be chosen at the discretion of the teacher

Presentation skills

Introduction

Note: Extensive reading is required for vocabulary building

Recommended Books:

1. Functional English

a) Grammar

1. Practical English Grammar by A. J. Thomson and A. V. Martinet.
Exercises 1. Third Edition. Oxford University Press. 1997. ISBN 0194313492

2. Practical English Grammar by A. J. Thomson and A. V. Martinet.

Exercises 2. Third edition. Oxford University Press. 1997. ISBN 0194313506

b) Writing

1. Writing. Intermediate by Marie-Christine Boutin, Suzanne Brinand and Francoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and 35-41.

C) Reading/Comprehension

2. Reading. Upper Intermediate. Brain Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 453402 2.

d) Speaking

Student's Output: To enhance language skills and critical thinking

Expository Writing		
English-II (Communication Skills)	Credit Hours:3(03+0)	Course Code: EW-2

Objectives: Enable the students to meet their real life communication needs.

Course Contents:

Paragraph writing _Practice in writing a good, unified and coherent paragraph

Essay writing: Introduction

CV and job application: Translation skills, Urdu to English

Study skills: Skimming and scanning, intensive and extensive, and speed reading, summary and précis writing and comprehension.

Academic skills: Letter/memo writing, minutes of meetings, use of library and internet

Presentation skills: Personality development (emphasis on content, style and pronunciation)

Note: documentaries to be shown for discussion and review

Recommended books:

Communication Skills:

a) **Grammar**

1. Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises
2. Third edition. Oxford University Press 1986. ISBN 0 19 431350 6.

b) **Writing**

1. Writing. Intermediate by Marie-Christine Boutin, Suzanne Brinand and Francoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 019 435405 7 Pages 45-53 (note taking).
2. Writing. Upper-Intermediate by Rob Nolasco. Oxford Supplementary Skills. Fourth Impression 1992. ISBN 0 19 435406 5 (particularly good for writing memos, introduction to presentations, descriptive and argumentative writing).

c) **Reading**

1. Reading. Advanced. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1991. ISBN 0 19 453403 0.
2. Reading and Study Skills by John Langan 6. Study Skills by Richard Yorky.

Students Output: To have improved communication skills

Expository Writing		
English-III (Technical Writing & Presentation Skills)	Credit Hours:3(03+0)	Course Code: EW-3

Objectives:

Enhance language skills and develop critical thinking

Course Contents:

Presentation skills

Essay writing: Descriptive, narrative, discursive, argumentative

Academic writing:

How to write a proposal for research paper/term paper?

How to write a research paper/term paper? (emphasis on style, content, language, form, clarity, consistency)

Technical Report writing

Progress report writing

Note: Extensive reading is required for vocabulary building

Recommended Books:

Technical Writing and Presentation Skills

a) Essay Writing and Academic Writing

1. Writing. Advanced by Ron White. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 435407 3 (particularly suitable for discursive, descriptive, argumentative and report writing).
2. College Writing Skills by John Langan. Mc=Graw-Hill Higher Education. 2004.
3. Patterns of College Writing (4th edition) by Laurie G. Kirsznar and Stephen R. Mandell. St. Martin's Press.

b) Presentation Skills

c) Reading

The Mercury Reader. A Custom Publication. Compiled by norther Illinois University. General Editors: Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharton. (A reader which will give students exposure to the best of twentieth century literature, without taxing the taste of engineering students).

Quantitative Reasoning		
Mathematics-I (Algebra)	Credit Hours:3(03+0)	Course Code: QR-1

Objectives:

To prepare the students, not majoring in mathematics, with the essential tools of algebra to apply the concepts and the techniques in their respective disciplines.

Course contents:

1. Preliminaries:

Real-number system, complex numbers, introduction to sets, set operations, functions, types of functions.

2. Matrices:

Introduction to matrices, types, matrix inverse, determinants, system of linear equations, Cramer's rule.

3. Quadratic equations:

Solution of quadratic equations, qualitative analysis of roots of quadratic equations, equations reducible to quadratic equations, cube roots of unity, relation between roots and coefficients of quadratic equations.

4. Sequences and Series:

Arithmetic progression, geometric progression, harmonic progression.

5. Binomial Theorem:

Introduction to mathematical induction, binomial theorem with rational and irrational indices.

6. Trigonometry:

Fundamentals of trigonometry, trigonometric identities.

Recommended Books:

1. Dolciani MP, Wooton W, Beckenback EF, Sharron S, *Algebra 2 and Trigonometry*, 1978, Houghton & Mifflin, **Boston (suggested text)**
2. Kaufmann JE, *College Algebra and Trigonometry*, 1987, PWS-Kent Company, Boston
Swokowski EW, *Fundamentals of Algebra and Trigonometry* (6th edition), 1986, PWS- Kent Company, Boston.

Quantitative Reasoning		
Introduction to Computer/ICT	Credit Hours:3(03+0)	Course Code: QR-2

Course Contents:

1. Introduction

Introduction to Computer s; Definition of a Computer; Hardware and Software; Classification and Types of Computers; A Typical Computer System Configuration.

2. Operating System (Windows)

What is an Operation System? What is Windows? Starting Windows, Organizing your Files and Folders, Making new Folders, Moving and copying items between Folders, Copying Files and Folders to and from Floppy Diskettes
Copying, Deleting, and Moving Block of files and folders

a. Word Processing (MS Word)

Word Processing and its Need, Document Operations, starting a New Document, Saving your work, Spell checking your work, Previewing and Printing your work, Opening an existing document, Switching between multiple open documents, Formatting Text – Changing the Font, size, color; highlighting characters, Creating a block and different operations on a block, Setting Alignment Formats – Center, Left-Aligning, Right-Aligning, Justifying, Page Formats, Adjusting page numbering

4. Spreadsheet (MS Excel)

Spreadsheet and its Applications, starting a New Worksheet, Saving, Opening, Editing and Printing your work, Entering Series, Formulas and Functions, Creating Formulas, Mathematical, Exponentiation, and Percentage Operators, Copying Formulas, What-if Analysis, Charting your Data, Inserting a chart

5. PowerPoint and MS-Access

Database Concepts, File Linkages, Data Retrieval, Data Editing / Updating. Data Transferring.

Recommended Books:

1. Gimi, Carter and Annette, Marquis, with Karl Browning, Mastering Microsoft Office XP Premium, Selection B.P.B., Publishers, New Dehli , (2001).
2. Robertson, D.F., Computer Applications and Programming, Har Brace Jovanovich Inc. USA (latest edition).
3. A Textbook of Computer Studies, Published by NWFP Textbook Board, Peshawar
4. James A. O'Brien; The Nature of Computers
5. A Textbook of Computer Studies, Published by NWFP Textbook Board, Peshawar

Quantitative Reasoning		
Introduction to Statistics	Credit Hours:3(03+0)	Course Code: QR-3

Course objectives: To equip the students with the knowledge of Introductory Statistics.

Course Contents:

1. What is Statistics?

Definition of Statistics, Population, sample Descriptive and inferential Statistics, Observations, Data, Discrete and continuous variables, Errors of measurement, Significant digits, Rounding off Number, Collection of primary and secondary data, Sources, Editing of Data. Exercises.

2. Presentation of Data

Introduction, basic principles of classification and Tabulation, Constructing of a frequency distribution, Relative and Cumulative frequency distribution, Diagrams, Graphs and their Construction, Bar charts, Pie chart, Histogram, Frequency polygon and Frequency curve, Cumulative Frequency Polygon or Ogive, Histogram, Ogive for Discrete Variable. Types of frequency curves. Exercises.

3. Measures of Central Tendency

Introduction, Different types of Averages, Quantiles, The Mode, Empirical Relation between Mean, Median and mode, Relative Merits and Demerits of various Averages. Properties of Good Average, Box and Whisker Plot, Stem and Leaf Display, definition of outliers and their detection. Exercises.

4. Measures of Dispersion

Introduction, Absolute and relative measures, Range, The semi-Inter-quartile Range, The Mean Deviation, The Variance and standard deviation, Change of origin and scale, Interpretation of the standard Deviation, Coefficient of variation, Properties of variance and standard Deviation, Standardized variables, Moments and Moments ratios. Exercises.

5. Probability and Probability Distributions.

Nature of Probability, Events, Sample Space, Mutually Exclusive Events, Simple and Composite Events, Addition Law of Probability, Independent & Dependent Events,

Recommended Books

- 1 Walpole, R. E. 1982. "Introduction to Statistics", 3rd Ed., Macmillan Publishing Co., Inc. New York.
- 2 Muhammad, F. 2005. "Statistical Methods and Data Analysis", Kitab Markaz, Bhawana Bazar Faisalabad.
- 3 Shahid Kamal, S.M. Choudry "Introduction to Statistics" Part-I

Civilizational		
Pakistan Studies	Credit Hours:3(03+0)	Course Code: CV-1

Course objectives:

Develop of governance, national development, issues arising in the modern age and posing challenges to Pakistan.

Course Contents:

1. Historical Perspective

- a. Ideological rationale with special reference to Sir Syed Ahmed Khan, Allama Muhammad Iqbal and Quaid-i-Azam Muhammad Ali Jinnah.
- b. Factors leading to Muslim separatism
- c. People and Land
 - i. Indus Civilization
 - ii. Muslim advent
 - iii. Location and geo-physical features.

2. Government and Politics in Pakistan

Political and constitutional phases:

- a. 1947-58 b. 1958-71 c. 1971-77 d. 1977-88 e. 1988-99 f. 1999 onward

3. Contemporary Pakistan

- a. Economic institutions and issues
- b. Society and social structure
- c. Ethnicity
- d. Foreign policy of Pakistan and challenges
- e. Futuristic outlook of Pakistan

Recommended Books:

1. Burki, Shahid Javed. *State & Society in Pakistan*, The Macmillan Press Ltd 1980.
2. Akbar, S. Zaidi. *Issue in Pakistan's Economy*. Karachi: Oxford University Press, 2000.
3. S.M. Burke and Lawrence Ziring. *Pakistan's Foreign policy: An Historical analysis*. Karachi: Oxford University Press, 1993.
4. Mehmood, Safdar. *Pakistan Political Roots & Development*. Lahore, 1994.
5. Wilcox, Wayne. *The Emergence of Banglades.*, Washington: American Enterprise, Institute of Public Policy Research, 1972.
6. Mehmood, Safdar. *Pakistan Kayyun Toota*, Lahore: Idara-e-Saqafat-e- Islamia, Club Road,
7. Amin, Tahir. *Ethno - National Movement in Pakistan*, Islamabad: Institute of Policy Studies, Islamabad.
8. Ziring, Lawrence. *Enigma of Political Development*. Kent England: Wm Dawson & sons Ltd, 1980.
9. Zahid, Ansar. *History & Culture of Sindh*. Karachi: Royal Book Company, 1980.
10. Afzal, M. Rafique. *Political Parties in Pakistan*, Vol. I, II & III. Islamabad: National Institute of Historical and cultural Research, 1998.
11. Sayeed, Khalid Bin. *The Political System of Pakistan*. Boston: Houghton Mifflin, 1967.
12. Aziz, K.K. *Party, Politics in Pakistan*, Islamabad: National Commission on Historical and Cultural Research, 1976.
13. Muhammad Waseem, *Pakistan Under Martial Law*, Lahore: Vanguard, 1987.
14. Haq, Noor ul. *Making of Pakistan: The Military Perspective*. Islamabad: National Commission on Historical and Cultural Research, 1993.

Civilizational		
Islamiat	Credit Hours:3(03+0)	Course Code: CV-2

Course objectives: This course is aimed at:

1. To provide Basic information about Islamic Studies.
2. To enhance understanding of the students regarding Islamic Civilization.
3. To improve Students skill to perform prayers and other worships.
4. To enhance the skill of the students for understanding of issues related to faith and religious life.

Courses contents:

Introduction to Quran Studies

1. Basic Concepts of Quran.
2. History of Quran
3. Uloom-ul -Quran

Study of Selected Text of Holly Quran

1. Verses of Surah Al-Baqra Related to Faith (Verse No-284-286)
2. Verses of Surah Al-Hujrat Related to Adab Al-Nabi (Verse No-1-18)
3. Verses of Surah Al-Mumanoon Related to Characteristics of faithful (Verse No-1-11)
4. Verses of Surah al-Furqan Related to Social Ethics (Verse No.63-77)
5. Verses of Surah Al-Inam Related to Ihkam (Verse No-152-154)

Study of Selected Text of Holly Quran

1. Verses of Surah Al-Ihzab Related to Adab al-Nabi (Verse No.6, 21, 40, 56, 57, 58.)
2. Verses of Surah Al-Hashar (18,19,20) Related to thinking, Day of Judgment
3. Verses of Surah Al-Saf Related to Tafakar,Tadabar (Verse No-1,14)

Seerat of Holy Prophet (S.A.W) I

1. Life of Muhammad Bin Abdullah (Before Prophet Hood)
2. Life of Holy Prophet (S.A.W) in Makkah
3. Important Lessons Derived from the life of Holy Prophet in Makkah

Seerat of Holy Prophet (S.A.W) II

1. Life of Holy Prophet (S.A.W) in Madina
2. Important Events of Life of Holy Prophet in Madina
3. Important Lessons Derived from the life of Holy Prophet in Madina

Introduction to Sunnah

1. Basic Concepts of Hadith
2. History of Hadith
3. Kinds of Hadith
4. Uloom –ul-Hadith
5. Sunnah & Hadith
6. Legal Position of Sunnah

Selected Study from Text of Hadith Introduction to Islamic Law & Jurisprudence

1. Basic Concepts of Islamic Law & Jurisprudence
2. History & Importance of Islamic Law & Jurisprudence
3. Sources of Islamic Law & Jurisprudence
4. Nature of Differences in Islamic Law
5. Islam and Sectarianism

Islamic Culture & Civilization

1. Basic Concepts of Islamic Culture & Civilization
2. Historical Development of Islamic Culture & Civilization
3. Characteristics of Islamic Culture & Civilization
4. Islamic Culture & Civilization and Contemporary Issues

Islam & Science

1. Basic Concepts of Islam & Science
2. Contributions of Muslims in the Development of Science

3. Quran & Science

Islamic Economic System

1. Basic Concepts of Islamic Economic System
2. Means of Distribution of wealth in Islamic Economics
3. Islamic Concept of Riba
4. Islamic Ways of Trade & Commerce

Political System of Islam

1. Basic Concepts of Islamic Political System
2. Islamic Concept of Sovereignty
3. Basic Institutions of Govt. in Islam

Islamic History

1. Period of Khlaft-E-Rashida
2. Period of Ummayyads
3. Period of Abbasids

Social System of Islam

1. Basic Concepts of Social System of Islam
2. Elements of Family
3. Ethical Values of Islam

Recommended Books:

1. Hameed ullah Muhammad, "Emergence of Islam" , IRI, Islamabad
2. Hameed ullah Muhammad, "Muslim Conduct of State"
3. Hameed ullah Muhammad, 'Introduction to Islam
4. Mulana Muhammad Yousaf Islahi,"
5. Hussain Hamid Hassan, "An Introduction to the Study of Islamic Law" leaf Publication
Islamabad, Pakistan.
6. Ahmad Hasan, "Principles of Islamic Jurisprudence" Islamic Research Institute, International Islamic University, Islamabad (1993).
7. Mir Waliullah, "Muslim Jrisprudence and the Quranic Law of Crimes" Islamic Book Service (1982).
8. H.S. Bhatia, "Studies in Islamic Law, Religion and Society" Deep & Deep Publications New Delhi (1989).
9. Dr. Muhammad Zia-ul-Haq, "Introduction to Al Sharia Al Islamia" Allama Iqbal Open University, Islamabad (2001).

Breadth		
A. Art & Humanities		
Introduction to History	Credit Hours:3(03+0)	Course Code: AH-1

Course Description:

The course familiarizes the students about the meanings, definitions and nature of History. They are also familiarized about the scope and benefits of History; History as a Corrective Force and Repetitive Force. Various branches of history and the relationship of history with sister subjects has been described. It familiarizes the students about Causation, Objectivity and Subjectivity in history writing and historical research, and to know about Narrative History, Scientific History, Philosophy of History, and Future History.

Learning Outcomes:

After completion of the course, the students will be able to understand the meanings and definitions of History. They will know whether history is science, art or both. They will know about the nature and scope of history and will be able to describe various branches of History. They will be able to understand the relationship of history with sister subjects. Besides, understanding Causation, Objectivity and Subjectivity in history writing and historical research will be the important outcome at the end of the course.

Course Contents:

1. **What is History?**
 - Meanings, Definitions
2. **Nature of History:** Whether History is Science or Art or both
3. **Scope of History**
4. **Benefits of History; History as a Corrective Force; History as a Repetitive Force**
5. **Branches of History:**
 - Political History; Cultural History; Social History; Economic History
6. **Relationship of History with other Social Sciences:**
 - Relationship with Political Science; Relationship with Anthropology;
 - Relationship with Sociology; Relationship with Economics
7. **Causation**
8. **Objectivity and Subjectivity in History Writing and Historical Research**
9. **Classification of History:**
 - Narrative History; Scientific History; Philosophy of History; Future History

Recommended Books:

1. Carr, E. H. *What is History?* With a New Introduction by Richard J. Evans. Reprint, Hampshire: Palgrave Macmillan, 2001.
2. Cohn, Bernard. *An Anthropologist among Historians and Other.* New Delhi: Oxford University Press, 1987.
3. Collingwood, R. G. *The Idea of History.* Revised edition with Lectures, 1926–1928. Edited with an Introduction by Jan Van Der Hussen. Oxford: Oxford University Press, 2011.
4. Hegel, G. W. G. *Elements of the Philosophy and the Old.* Cambridge: Cambridge University Press, 1991.
5. Hughes, Marnie. *Fifty Key Thinkers on History.* London: Routledge, 2000.
6. Gawranski, Donald V. *History: Meanings and Methods.* Atlanta: Scott, Foresman and Company, 1969.
7. Gil, Sadiq Ali. *Fan-e-Tarikh Nawisi: Homer say Toynbee tak.* 3rd edn., Lahore: Publishers Emporium, 2002.
8. Gil, Sadiq Ali. *Sarguzasht-e-Tarikh.* Lahore: Aziz Book Depot, 1992.
9. Guha, Ranjit. *The Small Voices of History.* Delhi: Permanent Black, 2010.

10. Marwick, Arthur. *The Nature of History*. 3rd edn., Hampshire: MacMillan Press Ltd, 1989.
11. Qureshi, Muhammad Aslam. *A Study of Historiography*. Lahore: Pakistan Book Centre, 1970.
12. Steedman, Carolyn. *Dust: The Archive and Cultural History*. New Jersey: Rutgers University Press, 2002.
13. Sultan-i-Rome. 'Objectivity in Historical Research'. *Journal of the Pakistan Historical Society*. Vol. 51, No. 3 (July–September 2003), pp. 113–121.
14. Tishnah, M. Nazir Ahmad. *Falsafah-e-Tarikh*. Lahore: Al-Faisal Nashran, 2012.

Breadth		
A. Art & Humanities		
History of Khyber Pakhtunkhwa	Credit Hours:3(03+0)	Course Code: AH-2

Course Description:

The course provides the knowledge about the colonial interests in the region, the formation of the province and its administration. It also deals with the role of the province in the Khilafat and Hijrat movements as well as civil disobedience and Khudai Khidmatgar movements and their impacts on the area. The course also covers political and constitutional developments, the Congress ministries, Tribal administration and referendum in NWFP.

Learning Outcomes:

After the completion of the course, the students will know about the colonial interests in the region and the consequent formation of the province, their administration both of the province and FATA and the Pukhtuns' struggle for independence. Besides, students will know about the promotion of modern education and the role of important personalities of the province in that field.

Course Contents:

1. Colonial Interests in Pakhtunkhwa:
 - Formation of the Province, 1901;
 - Its Distinction from the Rest of Indian Provinces
2. **British Rule:**
 - Administration; Railways and Roads; Irrigation Canals
3. **Role of the Province in the Khilafat and Hijrat Movements**
4. **Constitutional Developments till 2010**
5. **Khudayi Khidmatgar Movement:** Formation, Organization, and Achievements
6. **Disturbances and Civil Disobedience Movement**
7. **Congress Ministries:** Formation, and Legislation
8. **The Referendum, 1947**
9. **British Relations with the Tribes and Tribal Administration**
10. **Change of Name:** From North-West Frontier Province to Khyber Pakhtunkhwa
11. **Personalities:**
 - Sahibzada Abdul Qayum; Abdul Ghafar Khan; Abdul Qayum Khan; Abdul Wali Khan

Recommended Books:

1. Baha, Lal. *N.-W.F.P. Administration under British Rule, 1901—1919*. Islamabad; National Commission on Historical and Cultural Research, 1978.
2. Caroe, Olaf. *The Pathans: (550 BC—AD 1957)*. Reprint, Karachi: Oxford University Press, 1976.
3. Jansson, Erland. *India, Pakistan or Pakhtunistan: The Nationalist Movements in the North-West Frontier Province, 1937—1947*. Stockholm: Almqvist & Wiksell International, 1981.
4. Javaid, Aziz. *Sarhad ka Ayini Irtiqa* (Urdu). Peshawar: Idarah Tahqiq wa Tasnif, 1975.
5. Marsh, Brandon. *Ramparts of Empire: British Imperialism and India's Afghan Frontier, 1918—1947*. New York: Palgrave Macmillan, 2015.
6. Obhrai, Diwan Chand. *The Evolution of North-West Frontier Province: Being a Survey of the History and Constitutional Development of N.-W.F. Province, in India*. Reprint, Peshawar: Saeed Book Bank, n.d.
7. Shah, Sayed Wiqar Ali. *Ethnicity, Islam and Nationalism: Muslim Politics in the North-West Frontier Province, 1937—1947*. Karachi: Oxford University Press, 1999.
8. Sultan-i-Rome. "The Role of the North-West Frontier Province in the Khilafat and Hijrat Movements". *Islamic Studies* (Islamabad). Vol. 43, No. 1 (Spring 2004), pp. 51–78.

9. Sultan-i-Rome. *The North-West Frontier (Khyber Pakhtunkhwa): Essays on History*. Karachi: Oxford University Press, 2013.
10. Swinson, Arthur. *North-West Frontier: People and Events, 1839—1947*. London: Hutchinson & Co. (Publishers) Ltd., 1967.

Breadth		
Art & Humanities		
Uloom-ul-Quran	Credit Hours:3(03+0)	Course Code: AH-3

Week No	Topic	Description
01	تعارف قرآن مجید	۱۔ قرآن مجید کا لغوی اور اصطلاحی مفہوم ۲۔ قرآن مجید کی خصوصیات و امتیازات
02	وحی الہی	۱۔ وحی کا مفہوم و اہمیت ۲۔ وحی کی اقسام اور کیفیات
03	تاریخ نزول قرآن	۱۔ نزول قرآن کا مفہوم ۲۔ نزول قرآن مجید: تدریج و حکمتیں ۳۔ قرآن مجید کے خصائص
04	کتابت وحی	۱۔ کتابت وحی کا تعارف ۲۔ کتابتیں وحی ۳۔ کتابت وحی کے اسالیب
05	قرآن حفاظت مجید	۱۔ حفاظت قرآن کا مفہوم، ۲۔ حفاظت قرآن کے لیے اقدامات الف۔ حفظ، ب۔ کتابت، ج۔ عمل تواتر
06	حضرت ابوبکرؓ کے دور میں تدوین قرآن	۱۔ تدوین قرآن کی ضرورت ۲۔ تدوین قرآن کی ذمہ داری ۳۔ حفاظت قرآن کے لیے مدنی دور کے اقدامات
07	عہد عثمانی میں تدوین قرآن	۱۔ عہد عثمانی میں تدوین قرآن کے اسباب ۲۔ عہد عثمانی میں تدوین قرآن کے اسالیب ۳۔ عہد عثمانی میں تدوین قرآن کے اثرات
08	قرآن پاک کی مکی سورتیں	۱۔ مکی سورتوں کا تعارف و اہمیت ۲۔ مکی سورتوں کی شان نزول ۳۔ مکی سورتوں کے اہم مضامین
09	قرآن پاک کی مدنی سورتیں	۱۔ مدنی سورتوں کا تعارف و اہمیت ۲۔ مدنی سورتوں کی شان نزول ۳۔ مدنی سورتوں کے اہم مضامین
10	اسباب نزول	۱۔ اسباب نزول کا تعارف و اہمیت ۲۔ قرآن فہمی اور اسباب نزول ۳۔ تشریح قرآن میں اسباب نزول کی حیثیت
11	ناسخ و منسوخ	۱۔ ناسخ و منسوخ کا تعارف ۲۔ ناسخ و منسوخ کے اسباب ۳۔ ناسخ و منسوخ کا قرآن فہمی اور قرآن پاک کی تشریحی حیثیت پر اثرات
12	تفسیر القرآن کے اہم ماخذ	۱۔ تفسیر قرآن بالقرآن ۲۔ تفسیر قرآن بالحدیث ۳۔ تفسیر قرآن باقوال صحابہؓ و تابعین ۴۔ قدیم صحف سماوی ۵۔ جاہلی ادب ۶۔ آثار و اثرات
13	اسلوب القرآن	۱۔ اسلوب القرآن کا مفہوم ۲۔ اسلوب القرآن کی اقسام ۳۔ قرآن فہمی میں اسلوب القرآن کی اہمیت
14	اعجاز القرآن	۱۔ اعجاز القرآن کا مفہوم و تعارف ۲۔ اعجاز القرآن کی مختلف جہتیں ۳۔ اعجاز القرآن کے اثرات
15	قرآن مجید اور انسانی زندگی	۱۔ قرآنی مجید اور انفرادی انسانی زندگی ۲۔ قرآن مجید اور اجتماعی انسانی زندگی ۳۔ قرآن مجید کے انسانی زندگی پر اثرات
16	قرآن مجید اور عصری مسائل	۱۔ عصری مسائل اور ان کی نوعیت ۲۔ عصری مسائل کے حوالے سے قرآن مجید کا منہج

Recommended Books:

نمبر شمار	نام مصنف	نام کتاب
1	مولانا تقی عثمانی	علوم القرآن

1	علامہ سیوطی	الاتقان
2	ڈاکٹر محمد حسین الذہبی	التفسیر والمفسرون
3	عبد الصمد صارم	تاریخ قرآن
4	مولانا گوہر رحمن	علوم القرآن
5	مناظر احسن گیلانی	تاریخ قرآن
2	مولانا محمد مالک کاندھلوی	منازل العرفان
3	محمد علی الصابونی	روائع البیان
4	علامہ شمس الحق افغانی	علوم القرآن
5	مصطفیٰ اعظمی	The History of The Quran Text from revelation to compilation

Breadth		
Art & Humanities		
History of Pashtun	Credit Hours:3(03+0)	Course Code: AH-4

د پښتنو د تاريخ مطالعه

پښتون، پتهان، روهيله
د سکندر سره مشهور جنگونه
مغل او پښتانه
سیکان، غزاګانې او لامونه انګرېزان
ورومي، دويم، دريم افغان جنگونه
د تيراه، وزيرستان، باجوړ، مومند، سوات، لويه لوبه او پښتانه
ترهه ګري روسي يلغار جهاد طالبان او (د نهم يوولسم اثرات)

Breadth		
Art & Humanities		
Urdu	Credit Hours:3(03+0)	Course Code: AH-5

مجوزہ کتابونہ:

- . د پښتنو تاريخ، قاضي عطا الله
- . پښتانه د تاريخ په رڼا كښي، سيد بهادر شاه ظفر كا كاخېل
- . تاريخ خان جهان و مخزن افغاني (اردو ترجمه)، نعمت الله هروي
- . تواريخ حافظ رحمت خاني، پير معظم شاه
- . يوسفزئي قوم كي سرگزشت، خان روشن خان
- . تذکره، خان روشن خان

Breadth		
B. Social Sciences		
Introduction to Political Science	Credit Hours:3(03+0)	Course Code: SS-1

Course Objectives:

The objective of this course is to introduce the students with the fundamentals of the subject of Political Science and prepare them for advanced studies in the forthcoming semesters. The very basic concepts and terminology commonly used in the further courses of studies are taught to make the students friendly with the subject.

Course Contents:

1. Definition, Nature, Scope and Sub-fields of Political Science.
2. Relationship of Political Science with other social sciences.
3. Approaches to the study of Political Science: Traditional and behavioral approach.
4. State: its origin and evolution; Western and Islamic concepts of State,
5. Nation and Sovereignty.
6. Basic concepts of Political Science: Power, Authority, Legitimacy
7. Organs of Government: Legislature, Executive, Judiciary.

Note: Sub-fields of Political Science include: Political Philosophy/Theory; Comparative Politics; International Relations; Public Administration/ Public Policy; Local Government, etc.

Recommended Books:

1. Ahmad, Sheikh Bashir, *Riyasat Jo Ilm* (Sindhi meaning Science of State), Jamshoro, Institute of Sindhalogy, University of Sindh, 1985.
2. Haq, Mazher ul, *Theory and Practice in Political Science*, Lahore Bookland, 1996.
3. Ian Mackenzi (Ed.), *Political Concepts: A Reader and Guide*, Edinburgh, University Press, 2005.
4. Mohammad Sarwar, *Introduction to Political Science*, Lahore Ilmi Kutub Khana, 1996.
6. Robert Jackson and Dorreen Jackson, *A Comparative Introduction to Political Science*, New Jersey, Prentice – Hall, 1997
7. Rodee Anderson etc. *Introduction to Political Science*, Islamabad, National Book Foundation, Latest Edition.
8. Roskin, Michael G., *Political Science: An Introduction*, London: Prentice Hall, 1997.
9. Shafi, Choudhry Ahmad, *Usul-e-Siyasiat (Urdu)*, Lahore Standard Book Depot, 1996.
10. V. D. Mahajan, *Political Theory- Principles of Pol. Science*, New Delhi, S. Chand & Co., 2006.

Breadth		
B. Social Sciences		
Introduction to Economics	Credit Hours:3(03+0)	Course Code: SS-2

Course Outline:

1. Introduction

- Nature, scope and importance of Economics, Microeconomics vs. Macroeconomics, Scarcity and choice, Opportunity cost, Factors of production, Production possibility frontier.

2. Demand, Supply and Equilibrium

- Concepts of demand and supply, Laws of demand and supply, Market equilibrium, Shifts in demand and supply curves, and market equilibrium.

3. Elasticity

- Concept of elasticity, Price elasticity of demand, Income elasticity of demand, Cross Elasticity of Demand, Price elasticity of supply, Application of elasticity.

4. Utility Theory

- Consumer behavior, Preferences, Utility function, Laws of Increasing and diminishing marginal utility, Law of Equi-marginal utility.

5. Theory of Firm

- Factors of production and their rewards, Total, average, and marginal products, Laws of returns, Cost of production, Total, average, and marginal costs, Total, average, and marginal revenue. Concept of profit maximization/Cost minimization.

6. Market Structure

- Perfect competition & imperfect competition: assumptions and Price/Output determination in short run and long run. Monopoly, Short-Run and Long-Run Equilibrium of Monopoly, Regulation of Monopoly.

7. National Income

- Concepts of national income, GDP & GNP, Real vs. nominal GNP, NNP, NI, PDY, Saving and Personal Consumption.

8. Macroeconomic Issues

- Concept of inflation, unemployment, Balance of payment, Exchange rate and Business cycles. Monetary Policy and Fiscal Policy and their role in the economy.

Books Recommended:

1. Parkin, M. (2004). Economics, (5th Ed.). Addison Wesley.
2. Paul, A. S. and W. D. Nordhaus. (2004). Economics, (18th Ed.), McGraw Hills, Inc.
3. Sloman, J. (n.d.). Economics (Latest edition).
4. Lipsey and Crystal, (n.d.). Economics, (Latest edition).

Breadth		
B. Social Sciences		
Principles of Sociology	Credit Hours:3(03+0)	Course Code: SS-4

Course Objectives:

The course is designed to introduce the students with sociological concepts and the discipline. The focus of the course shall be on significant concepts like social systems and structures, socio-economic changes and social processes. The course will provide due foundation for further studies in the field of sociology.

Course Contents:

1. Introduction

Definition, Scope, and Subject Matter, Sociology as a Science, Historical back ground of Sociology

- Group, Community, Society, Associations, Non-Voluntary, Voluntary
- Organization: Informal, Formal
- Social Interaction

Levels of Social Interaction, Process of Social Interaction, Cooperation, Competition, Conflict, Accommodation, Acculturation and diffusion, Assimilation
Amalgamation

2. Social Groups

Definition & Functions, Types of social groups, In and out groups, Primary and Secondary group, Reference groups, Informal and Formal groups, Pressure groups

3. Culture

Definition, aspects and characteristics of Culture, Material and non material culture
Ideal and real culture

Elements of culture, Beliefs, Values, Norms and social sanctions

- Organizations of culture
Traits, Complexes, Patterns, Ethos, Theme
- Other related concepts
Cultural Relativism, Sub Cultures, Ethnocentrism and Xenocentrism, Cultural lag

4. Socialization & Personality

Personality, Factors in Personality Formation, Socialization, Agencies of Socialization, Role & Status

5. Deviance and Social Control

Deviance and its types, Social control and its need, Forms of Social control
Methods & Agencies of Social control

6. Collective Behavior

Collective behavior, its types, Crowd behavior, Public opinion, Propaganda, Social movements, Leadership

Recommended Books:

1. Brown, K. (2004). *Sociology*. UK: Polity Press
2. Frank, N. M. (2003). *International Encyclopedia of Sociology*. U.S.A: Fitzroy Dearborn Publishers
3. Gidden, A. (2002). *Introduction to Sociology*. UK: Polity Press.
4. Henslin, J. M. (2004). *Sociology: A Down to Earth Approach*. Toronto: Allen and Bacon.
5. Kerbo, H. R. (1989). *Sociology: Social Structure and Social Conflict*. New York: Macmillan Publishing Company.
6. Koenig, S. (1957). *Sociology: An Introduction to the Science of Society*. New York: Barnes and Nobel.

7. Lenski, G., & Lenski, J. (1982). *Human Societies*. (4th ed.) New York: McGraw-Hill Book Company.
8. Leslie, G. et al. (1973). *Order and Change: Introductory Sociology* Toronto: Oxford University Press.
9. Macionis, J. J. (2005). *Sociology* (10th ed.) South Asia: Pearson Education
10. Macionis, J. J. (2006). *Sociology*. (10th ed.) New Jersey: Prentice-Hall
11. Tischler, H. L. (2002). *Introduction to Sociology* (7th ed.) New York: The Harcourt Press.

Breadth		
B. Social Sciences		
Home Economics	Credit Hours:3(03+0)	Course Code: SS-5

Course Objectives:

To provide certain experiences which are preparation for professional home economics employment and family living.

Course Contents:

Nature of Home Economics, Aims and Objective of Home Economics, History of Home Economics, Home Economics in Pakistan, Home Economics as a profession, Scope of Home Economics as a profession, Method of teaching with special books recommended to Home Economics; Lecture, 'Demonstration' Laboratory 'field trips 'Role playing'

Group Discussion.', Role and Responsibilities of Home Economist towards family, Community and Profession.

Recommended Book:

1. Rhea Shields, Rhea Shields PhD, Anna Williams Opportunities in Home Economics Careers; McGraw-Hill; 1 edition (2000).

Breadth		
B. Social Sciences		
Introduction to Psychology	Credit Hours:3(03+0)	Course Code: SS-6

Course Objectives

Describe psychology with major areas in the field, and identify the parameters of this discipline. Distinguish between the major perspectives on human thought and behavior. Appreciate the variety of ways psychological data are gathered and evaluated. Gain insight into human behavior and into one's own personality or personal relationships. Explore the ways that psychological theories are used to describe, understand, predict, and control or modify behavior.

Course Contents

1. Introduction to Psychology

- i. Nature and Application of Psychology with special reference to Pakistan.
- ii. Historical Background and Schools of Psychology (A Brief Survey)

2. Methods of Psychology

- i. Observation
- ii. Case History Method Experimental Method.
- iii. Survey Method
- iv. Interviewing Techniques

3. Biological Basis of Behavior

- i. Neuron: Structure and Functions
- ii. Central Nervous System and Peripheral Nervous System
- iii. Endocrine Glands

4. Sensation, Perception and Attention

- a. Sensation
 - i. Characteristics and Major Functions of Different Sensations
 - ii. Vision: Structure and functions of the Eye.
 - iii. Audition: Structure and functions of the Ear.
- b. Perception
 - i. Nature of Perception
 - ii. Factors of Perception: Subjective, Objective and Social
 - iii. Kinds of Perception:
 - iv. Spatial Perception (Perception of Depth and Distance)
 - v. Temporal Perception; Auditory Perception.
- c. Attention
 - i. Factors, Subjective and Objective
 - ii. Span of Attention
 - iii. Fluctuation of Attention
 - iv. Distraction of Attention (Causes and Control)

5. Motives

- i. Definition and Nature
- ii. Classification
 - Primary (Biogenic) Motives: Hunger, Thirst, Defecation and Urination, Fatigue, Sleep, Pain, Temperature, Regulation, Maternal Behavior, Sex

Secondary (Sociogenic) Motives: Play and Manipulation, Exploration and Curiosity, Affiliation, Achievement and Power, Competition, Cooperation, Social Approval and Self Actualization.

6. Emotions

- i. Definition and Nature
- ii. Physiological changes during Emotions (Neural, Cardial, Visceral, Glandular), Galvanic Skin Response; Pupillometrics
- iii. Theories of Emotion
- iv. James Lange Theory; Cannon-Bard Theory
- v. Schechter –Singer Theory

7. Learning

- i. Definition of Learning
- ii. Types of Learning: Classical and Operant Conditioning Methods of Learning: Trial and Error; Learning by Insight; Observational Learning

8. Memory

- i. Definition and Nature
- ii. Memory Processes: Retention, Recall and Recognition
- iii. Forgetting: Nature and Causes

9. Thinking

- i. Definition and Nature
- ii. Tools of Thinking: Imagery; Language; Concepts
- iii. Kinds of Thinking
- iv. Problem Solving; Decision Making; Reasoning

10. Individual differences

- i. Definition concepts of; Intelligence, personality, aptitude, achievement

Recommended Books:

- Atkinson R. C., & Smith E. E. (2000). Introduction to psychology (13th ed.). Harcourt Brace College Publishers.
- Fernald, L. D., & Fernald, P. S. (2005). Introduction to psychology. USA: WMC Brown Publishers.
- Glassman, W. E. (2000). Approaches to psychology. Open University Press. Hayes, N. (2000). Foundation of psychology (3rd ed.). Thomson Learning. Lahey, B. B. (2004). Psychology: An introduction (8th ed.). McGraw-Hill Companies, Inc.
- Leahey, T. H. (1992). A history of psychology: Main currents in psychological thought. New Jersey: Prentice-Hall International, Inc.
- Myers, D. G. (1992). Psychology. (3rd ed.). New York: Wadsworth Publishers.
- Ormrod, J. E. (1995). Educational psychology: Developing learners. Prentice-Hall, Inc.

Breadth		
C. Natural Sciences		
Introduction to Biology	Credit Hours:3(03+0)	Course Code: NS-1

Course Contents:

1. **Introduction to biology**, Characteristics of living things.
2. **Biological Molecules**: Water and its properties, Carbohydrates, Lipids, Proteins, Nucleic Acids (DNA and RNA)
3. **Scientific Method of Study**: Hypothesis and Theory
4. **Life**: Living Matter (Protoplasm), level of organization, Prokaryote and Eukaryotes, Cell and its organelles, Cell communication (Diffusion, Osmosis, Endocytosis and Exocytosis).
5. **Energy**: Types of Energy, Laws of Thermodynamics, ADP and ATP, Enzymes, Cellular respiration, Photosynthesis
6. **Diversity of Life**: Virus and its classes, (Tobacco Mosaic Virus), Archaea, Bacteria, Protista, Fungi, Plantae, Animalia
7. **Plant structure and Physiology**: Growth, Reproduction
8. **Animal Anatomy and Physiology**: Tissues and types, Nervous system, Endocrine system, Blood and circulatory system, Respiration and digestive system, Renal system, Reproduction
9. **Genetics**: DNA and its replication, Chromosome, Mitosis and Meiosis, Mendel's laws, Multiple alleles (Blood Grouping), Polygenic inheritance
10. **Evolution**: Darwin's theory of evolution, Lamarckism
11. **Ecology**: Environment, population, community, Ecosystem, energy flow in ecosystem (Food chain, web, pyramids), Interactions in ecosystem (Competition, Predator, Prey, Symbiosis), Biodiversity, Biogeochemical cycles (Nitrogen cycle), Environmental problems (Pollution, Greenhouse effect, Ozone depletion)

Books Recommended

- Campbell, N.A. 2002. Biology Sixth Edition. Menlo Park, California:
- Mackean, D. G. (1969). Introduction to biology.
- Mauseth, J. D. (2014). Botany: an introduction to plant biology. Jones & Bartlett Publishers.
- Enger, E. (2003). Concepts in Biology'2007 Ed. Rex Bookstore, Inc..
- Marine Biology by Peter Castro and Michael Huber. McGraw Hill, 2003.

Breadth		
C. Natural Sciences		
Fundamental of Physics	Credit Hours:3(03+0)	Course Code: NS-2

Course Objectives:

The objective of designing this course is to students with the basics ideas of Physics. The students after studying the course will be able to use of Physics in our daily life.

Course Contents:

Introduction: Basic ideas in Physics, Vectors and Scalar, Force, Energy and Work, Momentum inertia and Angular momentum. Black Body Radiations.

Universe, Galaxy, Light Year, Solar System, Sun, Earth, Astronomical System of Units.

Natural Processes: Solar and Lunar Eclipses, Rotation and Revolution, Weather Variables (Global Temperature, Pressure, Circulation), Humidity. Weather Variations.

Reflection and Refraction, Horizon. **Natural Disaster:** Earth quake, Volcanic Eruption, Tsunami, Floods, Avalanche, Tornadoes, Cyclone. **Renewable Energy Resources:**

Sources of Energy (Renewable i.e. LED, OLEDs, Solar Cell, Fuel Cells, Photocatalytic conversion processes, Solar Energy, Wind Energy and Non Renewable Energy conservation and its use. **Structure of Atom**, Chemical Bonding, Electromagnetic Radiations.

Advanced Materials in Nanotechnology, Ceramics, Plastics and Semiconductors.

Recommended Books:

1. University Physics, Textbook by Hugh D. Young, Pub. Pearson
2. Fundamentals of Physics by Jearl Walker
3. Science Restated: Physics and Chemistry for the Non-Scientist 1970, Harold Gomes Cassidy
4. Exploring Physical Science, Walter A. Thurber, Robert E. Kilburn, Peter S. Howell

Breadth		
C. Natural Sciences		
Introduction to Chemistry	Credit Hours:3(03+0)	Course Code: NS-3

Disciplinary/Subject Specific Courses
Associate Degree

Eligibility for Admission: FSc (Pre-Medical)

1. Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository writing -1	03	Expository writing -2	03	Expository writing -3	03	Art & Humanities-2	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Art & Humanities-1	03	Introduction to Environmental Science	03
Civilization Course-1	03	Civilization Course-2	03	Invertebrate Zoology	2+1	Diversity of Plants	2+1
Natural Science-1	03	Natural Science-2	03	Chordate Zoology	2+1	Plants systematics, Anatomy and Development	2+1
Social Science-1	03	Social Science-2	03	Principles of Animal Life	2+1	Cell Biology, Genetics and Evolution	2+1

Eligibility for Admission: FSc (Pre-Medical)

2. Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository writing -1	03	Expository Writing -2	03	Expository Writing -3	03	Art & Humanities-2	03
Quantitative Reasoning-1	03	Quantitative Reasoning-2	03	Art & Humanities-1	03	Invertebrate Zoology	2+1
Civilization Course-1	03	Civilization Course-2	03	Inorganic Chemistry	2+1	Chordate Zoology	2+1
Natural Science-1	03	Natural Science-2	03	Organic Chemistry	2+1	Principles of Animal Life	2+1
Social Science-1	03	Social Science-2	03	Physical/Analytical Biochemistry	2+1	Introduction to Environmental Science	03

Eligibility for Admission: FSc (Pre-Medical)

3. Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository writing -1	03	Expository writing -2	03	Expository writing -3	03	Art & Humanities-2	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Art & Humanities-1	03	Diversity of Plants	2+1

Scheme of Studies for Associate Degree Program, 2020 and onward

Civilization Course-1	03	Civilization Course-2	03	Inorganic Chemistry	2+1	Plants systematics, Anatomy and Development	2+1
Natural Science-1	03	Natural Science-2	03	Organic Chemistry	2+1	Cell Biology, Genetics and Evolution	2+1
Social Science-1	03	Social Science-2	03	Physical/ Biochemistry	2+1	Introduction to Environmental Science	03

Subject Specific Course		
Invertebrate Zoology	Credit Hours:3(2+1)	Course Code: SSC-1

Course objectives:

The course is designed to provide students with:

- Taxonomic characteristics and classification of each phylum
- Concepts of evolutionary relationship of animal kingdom
- Knowledge about animal kingdom, emphasizing their phylogenetic relationships and simple to complex mode of animal life

Course outcomes:

This course will enable the students to:

- **UNDERSTAND** cell cycle and the different types of cell division.
- **UNDERSTAND** the fundamentals of genetics and evolution
- **LEARN** about animal behaviour

Course Contents

Classification (up to orders) and general organization (Structure Function, mode of life, reproduction and eyeless, adaptations, distribution and economic importance) of the following groups types wherever mentioned shall be used for understanding the structure function problems in the groups. In addition special topics mentioned in each group shall be dealt with in greater detail.

Protozoa: General organization special aspect. Parasitism. Porifera: Type: Sycon General organization Special aspect: Canal System.

Coelenterate: Type: Obelia General Organization Polymorphism, Corals and coral reefs.

Ctenophora: Diagnostic features only.

Platyhelminthes: Type: Fasciola: General Organization, Special aspect: parasitic adaptations.

Aschelminths: Diagnostic features Type: Ascaris. Annelida. Type: Leech General Organization, Special Aspects: Coelom, Metamerism. Development, Minor Phyla: Diagnostic features only. Mollusca: Type: Union, General Organization, Special aspects: shell Foot & Locomotion: Feeding and respiration: Arthropoda: Type: Cockroach: General Organization: Special aspects: Feeding, Metamorphosis: Appendages and Locomotion: Echinodermata: Type: Starfish: General Organization, Special aspects: Skeleton: Larval forms.

Practicals

(a) Dissection: Union, Leech, Cockroach.

(b) Examination of Prepared Slides: Protoz:

Euuglena, Volvox, Trypanosoma, Opaline, Entamoeba, Foraminifera, Radio-larva, Malarial, Parasite, Monesystis, Balantidium, Collodium, Vorticella, Stouter, Nyctotheres.

Porifera: Spicules of sponges, section of Sycon.....

Coelenterata: Section of Hydra, Medusa of Obelia (Whole mount).

Platyhelminthes: Whole mount Planarian, Fasciola, Taenia seginata.

Aschelminthes: T.S. of Ascaris, Hookworm, Nemertine (Whole mount).

Annelids: T.S of leech

Arthropoda: Whole mount of rat-flea, lice.

Echinodermata: T.S any Echinoderm. Use of Vital Stains.

(c) General survey of invertebrates from museum specimens.

Recommended Books:

1. Campbell, N.A. 2002. Biology, 6th Ed. Menlo Park, California: Benjamin/Cummings Publishing Company, Inc.
2. Hickman, C.P., Kats, H.L. 2000. Laboratory Studies in Integrated Principles of Zoology. Singapore: McGraw Hill.
3. Hickman, C.P., Roberts, L.S., Larson, A. 2011. Integrated Principles of Zoology, 15th Ed. (International). Singapore: McGraw Hill.
4. Miller, S.A., 2002. General Zoology Laboratory Manual. 5th Ed. (International). Singapore: McGraw Hill.
5. Miller, S.A., Harley, J.B. 2011. Zoology, 8th Ed. (International), Singapore: McGraw Hill.
6. Pechenik, J.A. 2010. Biology of Invertebrates, 4th Ed. (International), Singapore: McGraw Hill.

Subject Specific Course		
Chordate Zoology	Credit Hours:3(2+1)	Course Code: SSC-2

Course Contents:

Origin of chordate, Comparative, anatomy and function of integumentary, skeletal, muscular, digestive, circulatory, respiratory, excretory, Nervous (including sense organs), hormonal & reproductive system of Chordates.

Practical/Lab:

- (a) Dissection: Pigeon, Uromastix.
- (b) Demonstration of brain, heart and eye of sheep.
- (c) Skeletons: Detail account of Labia, varanus & Rabbit. Girdles of tortoise & pigeon, horse or cow. Skull of dog.
- (d) Different types of scales of fishes. Different types of feathers of birds shell of a tortoise. Dermal & epidermal scales of Crocodile, Modification of hair, horn, scales & spines, nails, claws hooves, antlers (Demonstration from museum specimen only).
- (e) Demonstration of following prepared slides:
Amphioxus (Whole mount and T.S through different regions. Pharynx of Ascidian).
Section of skin of fish, amphibian, and mammals.
Development of Amphioxus, frog, chick, Demonstration of chick embryo.
- (f) Study of histological prepared slides of the following: Section of liver, kidney, spleen, thyroid gland, testis, ovary, heart, muscle, pancreas, nerve, cord, lung, intestine, stomach of vertebrates.
- (g) General survey of Chordates forms the museum specimens.

Recommended Book:

1. The vertebrate body by Romer (short version) Reprinted by National Book Foundation, 1976.

Subject Specific Course		
Principles of Animal Life	Credit Hours:3(2+1)	Course Code: SSC-3

Course Objectives:

The course aims to impart knowledge and understanding of:

- The concept and status of Zoology in life sciences and the common processes of life through its biochemical and molecular processes.
- The structure and function of cell organelles and how common animal cell diversified in various tissues, organs and organ systems.
- Biochemical mechanisms eventually generating energy for animal work.
- Animals and their relationship with their environment.

Course Outcomes:

The students after studying this course will be able to:

- **UNDERSTAND** the scope of Zoology
- **ACQUIRED** the knowledge of cellular organization and the basic biochemical processes.
- Get **FAMILIAR** with the fundamentals of ecology and genetics.

Course Contents

Scope of Zoology: Introduction; significance and applications of zoology; animal diversity; the scientific method; environment and world resources.

The Chemical Basis of Animal Life: Brief introduction to biomolecules; carbohydrates, lipids, proteins, and nucleic acids.

Cellular Organization: Structure of animal cells, cell membrane, cytoplasm and its organelles: ribosomes, endoplasmic reticulum, Golgi apparatus, lysosomes, mitochondria, cytoskeleton, cilia and flagella, centrioles and microtubules, vacuoles; the nucleus: nuclear envelope, chromosomes and nucleolus.

Animal tissues: Types: epithelial, connective, muscle and nervous tissue; organs and organ systems.

Enzymes: Structure, types; function and factors affecting their activity; cofactors and coenzymes.

Energy Harvesting: Aerobic and anaerobic respiration: glycolysis, citric acid cycle and electron transport chain; fermentation, the major source of ATP.

Reproduction and Development: Types; asexual and sexual, gametogenesis, fertilization, metamorphosis, zygote and early development.

Ecological Concepts: Ecosystem, types, homeostasis, biomes, food chain, food web, energy flow and thermodynamics; biogeochemical cycles, and limiting factors, populations and communities, human population growth, pollution, resource depletion and biodiversity.

Practicals:

- Tests for different carbohydrates, proteins and lipids.
- Study of the prepared slides of epithelial tissue (squamous, cuboidal, and columnar), connective tissue (adipose, cartilage, bone, and blood), nervous tissue and muscle tissue (skeletal, smooth and cardiac).
- Plasmolysis and deplasmolysis in blood. Preparation of blood smears.
- Protein digestion by pepsin.
- Ecological notes on animals of a few model habitats.
- Field observation and report writing on animals in their ecosystem (a terrestrial and an aquatic ecosystem study).

Recommended Books:

1. Hickman, C.P. and Kats, H.L. 2000. Laboratory Studies in Integrated Principles of Zoology. Singapore: McGraw Hill.
2. Hickman, C.P., Roberts, L.S. and Larson, A. 2004. Integrated Principles of Zoology, 12th Ed. (International), Singapore: McGraw Hill.
3. Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Jane B. Reece. 2016. Campbell Biology. 11th Ed. Pearson Publishing. Chesterton Mill, French's Road, Cambridge, CB4 3N.
4. Miller, S.A. 2002. General Zoology Laboratory Manual. 5th Ed. (International), Singapore: McGraw Hill.
5. Miller, S.A. and Harley, J.B. 2005. Zoology, 6th Ed. (International), Singapore: McGraw-Hill.
6. Molles, M.C. 2005. Ecology: Concepts and Applications. 6th Ed. McGraw Hill, New York, USA.
7. Odum, E. P. 1994. Fundamentals of Ecology. 3rd Ed. W.B. Saunders. Philadelphia.

Subject Specific Course		
Introduction to Environmental Science	Credit Hours:3(3+0)	Course Code: SSC-4

Course Contents:

Introduction, Basic concepts, history, nature and scope of Environmental Science, Environmental Sciences and its contribution to society, Different aspects of environment: physical, ecological, socio-economic, ethical, philosophical, Different aspects of environment: physical, ecological, Different aspects of environment: socio-economic, ethical, philosophical, Major components of environment: Physico-chemical, Major components of environment: biological and social, Major components of environment: Physico-chemical, biological and social, and their relationships with various environmental factors, Human environment and its problems: global, Human environment and its problems: national, regional, Environmental challenges for sustainable development, Current and future trends in population growth, Environmental pollution, Development in industry and agriculture, Urbanization, poverty and resource depletion.

Recommended Books:

1. Environmental Science: Earth as a Living Planet, Botkin, D.B & Keller, E.A. 6th Ed. John Wiley & Sons, 2007.
2. Environmental Science: systems and solutions, McKinney, M.L., Schoch, R.M. & Yonavjak, L. 4th Ed. Jones & Bartlett Publishers, 2007
3. Environmental Science: Toward a Sustainable Future, Wright, R.T. & Nebel, B.J. 10th Ed. Pearson Educational, 2007.
4. Environmental Science: working with the Earth. Miller, G., Thomson Learning, 2005.

Subject Specific Course		
Diversity of Plants	Credit Hours:3(3+0)	Course Code: SSC-5

Course Contents:

1. **Viruses:**
 - i) Their structure and biochemical nature.
 - ii) Introduction to viral diseases: Tobacco Mosaic virus disease (TMV)
2. **Bacteria:**
 - i) General structure, classification and biological importance (Role of Bacteria (Rhizobium) in Rhizosphere, Nodulation).
 - ii) General economic importance of bacteria.
3. **Fungi:**

General structure, occurrence, reproduction, classification, and life cycle of

 - i) Mastigomycotina: *Albugo*
 - ii) Ascomycotina: *Penicillium*,
 - iii) Basidiomycotina: *Agaricus and Puccinia*.
4. **Algae:**

General structure, occurrence, reproduction and classification:

 - i) Cyanophyta: General account and life cycle of *Nostoc*.
 - ii) Chlorophyta: General account, economic importance, and life cycle of *Volvox*
 - iii) Charophyta: *Chara*
 - iv) Xanthophyta: General account
 - v) Bacillariophyta: General account, economic importance and life cycle of *Pinnularia*.
 - vi) Phaeophyta: General account and economic importance
 - vii) Rhodophyta: General account, economic importance, and life cycle of *Batrachospermum*.
5. **Lichens:** General account & structure.
6. **Bryophyta** (Atracheophyta)

General account, reproduction, classification, affinities and ecological importance with special reference to the life cycle of, *Marchantia* and *Funaria*.
7. **Pteridophyta:**
 - a) Psilopsida: General account, structure and life history of *Psilotum* and its affinities.
 - b) Lycopsidea: General account, structure and life history of *Selaginella* and its affinities.
 - c) Sphenopsida: General account, structure and life history of *Equisetum*.
 - d) Pteropsida: Filicinae (Ferns), General account: structure and life history of *Adiantum*
8. **Gymnospermae:**

General account with reference to structure and life history of *Pinus*.
9. **Angiospermae:** General Characteristics and life cycle of a typical angiosperm

Practicals:

1. Bacterial culture and staining, Identification of Gram positive and Gram negative bacteria.
2. Study of the preserved and fresh field specimens of various groups mentioned in theory paper.
3. Identification of prepared slides of various types mentioned.

Recommended Books:

1. Agrios, G. N., 2005. Plant Pathology, Academic Press, London.
2. Alexopoulos, C. J., Mims, C. W. and Blackwell, M. 1996. Introductory Mycology, 4th Ed. John Wiley & Sons.
3. Bold, H. C. and Wynne, M. J. 1985. Introduction to Algae: structure and reproduction. Prentice Hall Inc. Engle Wood Cliffs.
4. Foster, A. S. and Gifford, E. M. Jr. 1998. Comparative Morphology of Vascular Plants. W. H. Freeman and Co.
5. Hussain, F. 2013. Phycology. A text book of Algae. Pak Book Empire Lahore.
6. Ingrouille, M. 1992. Diversity and Evolution of Land Plants. Chapman & Hall.
7. Lee, R. E. 1999. Phycology. Cambridge University Press, U.K.
8. Moore-Landecker, E. 1996. Fundamentals of Fungi. 4th Edn. Prentice Hall Inc., New Jersey, USA.
9. Panday, B. P. 2006. College Botany. Vol 1 & II. S. 7th Edition. Chand & Co. India.
10. Raven, P. H. Evert, R. E. and Eichhorn, S. E. 1999. Biology of Plants, W. H. Freeman and Company Worth Publishers.
11. Schofield, W. B. 1985. Introduction to Bryology. MacMillan Publishing Co. London.
12. Smith, G.M. Cryptogrammic Botany. Vol I & II. National Book Foundation, Islamabad.
13. Vashishta, B. R., Sinha, A. K. and Kumar, A. 2010. Gymnosperms. S. Chand & Co. India.
14. Vashishta, B. R., Sinha, A. K. and Kumar, A. 2010. Pterodophyta. S. Chand & Co. India.
- Webster, J. W. 1980. An Introduction to Fungi. National Book Foundation, Islamabad.

Subject Specific Course		
Plants Systematics	Credit Hours:3(2+1)	Course Code: SSC-6

Course Contents:

1. Scope and importance of plant systematics; brief introduction to the principles of plant systematics: Systematics and Taxonomy, Molecular systematics, Biosystematics, Identification, Nomenclature, Classification, Phylogeny. Different floristic phases of plant taxonomy.
2. Botanical Nomenclature: Common names, scientific names, International Code of Nomenclature for Algae, Fungi, and Plants (ICN), Generic name, specific epithet, rules of priority, rank of taxa, typification (type concept), effective and valid publication, author citation, rejection of names (synonyms, tautonyms, homonyms, autonym).
3. Systems of Classification, types of classification systems (Bentham & Hooker's system, Armen Takhtajan System).
4. Botanical terminology: habit, root, stem, leaves, floral morphology, floral formulas and diagrams
5. Distribution, diagnostic characters, introduction to the relevant terminology and economic importance of the following families.
 - i) Lamiaceae (*Lamium*)
 - ii) Ranunculaceae (*Ranunculus*)
 - iii) Brassicaceae (*Brassica*)
 - iv) Euphorbiaceae (*Euphorbia*)
 - v) Fabaceae (*Pisum, Lathyrus*)
 - vi) Rutaceae (*Citrus*)
 - vii) Malvaceae (*Malva*)
 - viii) Cucurbitaceae (*Cucurbita, Luffa*)
 - ix) Solanaceae (*Solanum, Petunia*)
 - x) Asteraceae (*Sunflower*)
 - xi) Liliaceae (*Alium, Asphodelus*)
 - xii) Poaceae (*Triticum, Avena*)
 - xiii) Amaranthaceae (*Amaranthus*)
 - xiv) Rosaceae (*Rosa*)

Practicals:

1. Technical description of plants of the local flora and their identification up to species level with the help of a regional/Flora of Pakistan.
2. Preparation of indented and bracketed types of keys.
3. Preparation of permanent slides of pollen grains by acetolysis method and study of different pollen characters.
4. Submission of properly mounted and fully identified hundred herbarium specimens at the time of examination.
5. Field trips shall be undertaken to study and collect plants from different ecological zones of Pakistan.

Recommended Books:

1. Davis, P. H. & Heywood, V. H. 1963. Principles of Angiosperm Taxonomy. Oliver & Boyd, London.
2. Ingrouille, M. 1992. Diversity and Evolution of Land Plants, Chapman & Hall. London.
3. Jones, S. B. and Luchsinger, A. E. 1987. Plant Systematics. McGraw-Hill, Inc. New York.
4. Radford, A. E., Dickison, W. C., Massey, J. R. and Bell, C. R. 1998. Vascular Plant Systematic. Harper and Row, New York.
5. Simpson, M. G. 2006. Plant Systematics. Elsevier Academic Press.
6. Sivarajan V. V and Robson, N. K. P. 1991 Introduction to the Principles of Plant Taxonomy.
7. Soltis, D. E., Soltis, P. S., Endress, P. K., and Chase, M. W. 2005. Phylogeny & evolution of angiosperms. Sinauers associates, Inc. Publishers.
8. Stace, C. (1992). Plant Taxonomy and Biosystematics, Edward Arnold.
9. Takhtajan, A. (1986). Flowering Plant: Origin and Dispersal, Oliver and Boyd, Edinburgh.
10. Pullaiah, T. 2007 Taxonomy of Angiosperms 3rd Ed. Regency Publication, New Delhi.
11. Tod F. Stuessy (2009). Plant Taxonomy, '*the Systematic Evaluation of Comparative data*' Second Edition, Columbia University Press, New York.
12. Judd, Walter S., Campbell, Christopher S., Kellogg, Elizabeth A., Stevens, Peter F. and Donoghue, Michael J., 2008. Plant Systematics: a Phylogenetic Approach, 3rd ed. Sinauer Associates, Inc., Sunderland, Massachusetts.
13. Gurcharan Singh, (2010). Plant Systematics: an integrated approach. 3rd Edition. Science Publishers, New Delhi, India.
14. Harris, J. G. and M. W. Harris. (2001). *Plant Identification Terminology: An Illustrated Glossary*. 2nd ed. Spring Lake Publications.

Subject Specific Course		
Cell Biology, Genetics and Evolution	Credit Hours:3(2+1)	Course Code: SSC-7

Course Contents:

a) Cell Biology

1. Structure and Function of Bio-molecules: Carbohydrates, Lipids, Proteins, Nucleic Acids
2. Cell: Cell theory, cell types (prokaryotes, eukaryotes), basic properties of cell.
3. Brief description of following cell organelles:
 - i. Cell wall
 - ii. Cell membrane
 - iii. Nucleus
 - iv. Endoplasmic reticulum
 - v. Plastids
 - vi. Mitochondria
 - vii. Ribosomes
 - viii. Dictyosomes
 - ix. Vacuoles
4. Reproduction in somatic and embryogenic cell, mitosis, meiosis and cell cycle

b) Genetics

1. Introduction, scope and brief history of genetics. Mendelian inheritance; Laws of segregation and independent assortment, back cross, test cross, dominance and incomplete dominance.
2. Molecular genetics; DNA replication. Nature of gene, genetic code, transcription, translation, protein synthesis, regulation of gene expression (e.g. lac operon).
3. Chromosomal aberrations; Changes in the number of chromosomes. Aneuploidy and Euploidy. Changes in the structure of chromosomes, deficiency, duplication, inversion and translocation.

c) Evolution: Introduction and theories.

Practicals:

Cell Biology:

- ii. Study of cell structure using compound microscope and elucidation of ultrastructure from electron microphotographs
- iii. Measurement of cell size.
- iv. Study of mitosis and meiosis by smear/squash method and from prepared slides. Study of chromosome morphology and variation in chromosome number.
- v. Extraction and estimation of carbohydrate, protein, RNA and DNA from plant sources.

Genetics:

- i. Genetical problems related to transmission and distribution of genetic material.
- ii. Identification of chromosomes in plant material. Carmine/orcein staining.
- iii. Determination of blood groups

Recommended Books:

1. Hoelzel, A. R. 2001. Conservation Genetics. Kluwer Academic Publishers.
2. Dyonsager, V. R. (1986). Cytology and Genetics. Tata and McGraw-Hill Publication Co. Ltd., New Delhi.
3. Lodish, H. 2001. Molecular Cell Biology. W. H. Freeman and Co.
4. Sinha, U. and Sinha, S. (1988). Cytogenesis Plant Breeding and Evolution, Vini Educational Books, New Delhi.
5. Strickberger, M. V. (1988), Genetics, MacMillan Press Ltd., London.
6. Carroll, S. B., Grenier, J. K. and Welnerbee, S. D. 2001. From DNA to Diversity - Molecular Genetics and the Evolution of Animal Design. Blackwell Science.
7. Lewin, R, 1997. Principles of Human Evolution. Blackwell Science.
8. Strickberger, M. W. 2000 Evolution. Jones & Bartlet Publishers Canada
9. Ingrouille M. J. & B. Eddie. 2006. Plant Diversity and Evolution. Cambridge University Press.
10. Bruce Albert et al. 2009. Essential cell biology. Garland Sciences Publishers.

Subject Specific Course		
Inorganic Chemistry	Credit Hours:3(2+1)	Course Code: SSC-1

Course Contents:

1. **Hydrogen:** Position in the Periodic Table, Isotopes. Ortho and Para-hydrogen. Atomic Hydrogen. Hydrides..... classification preparation and properties.
2. Modern concepts of Acids and Bases including elementary treatment of soft and Hard Acid-Base concept.
3. Alkali and alkaline Earth metals: General Characteristics based on electronic configuration. Diagonal relationship.
4. Boron and Aluminum: General Characteristics of the Group. Diagonal relationship Electron deficient molecules-Borates. Boron Trihalides. Borides. LiAlH_4 and LiAlH_4
5. Carbon and silicon. General Characteristics of the Group. Diagonal relationship Carbides. Silicides Structure and industrial application.
6. Nitrogen and Phosphorus characteristics of the group. Fixation of Nitrogen with reference to recent developments. Oxyacid of Nitrogen and phosphorus. Halides of phosphorus.
7. Oxygen and sulphur: General characteristics of the group. Oxyacid, Peracids and Thionic Acids of Sulphur.
8. Halogens: General Characteristics of the Group. Chemistry of Fluorine. Later-halogens and Pseudo halogens (Chemistry and Structure). Disproportionation Reactions of Halogens.
9. Zero Group elements: General characteristics of the Groups. Chemistry of the group with reference to Xenon and its compounds bonding and structure of the Xenon Compounds.
10. Transition Metals: General characteristics of the group based on the electronic configuration of the elements. Complex compounds, Nature of coordinate Bond, Historical development, application of valence Bond, Molecular Orbital and Crystal Field theories to explain the structure of the complex compounds. Elementary treatment of Isomerism in Complex Compounds.
11. Zinc Group Elements: General Characteristics of the group.

Recommended Books:

1. Text Book of Inorganic Chemistry for B.Sc. Students By Dr. Abdul Majid Qureshi & Dr. M. Zafar Iqbal Ilmi Kutab Khana Lahore.
2. Inorganic Chemistry for B.Sc. students By Dr. Badruddin & Dr. S. Marghoob Ali Feroz Sons, Ltd.
3. Fundamental Concepts of Inorganic Chemistry By Esmarch S. Gilreath McGraw Hill
4. Advanced Inorganic Chemistry By Cotton & Wilkinson Inter Science
5. Inorganic Chemistry By Huhee Harper & Row.
6. Advance Inorganic Chemistry By "Coulson".

Practicals:

1. Surface tension of liquids and determination of composition of liquid mixture by surface tension measurements.
2. Viscosity of liquids and determination of composition of liquid mixture by viscosity measurements.
3. Heat of solution and neutralization.
4. Refractive index measurements.
5. Preparation of colloidal solution and determination of precipitation value.
6. Determination of transition temperature by thermometric or dilatometric method.
7. Order of a reaction of hydrogen peroxide and HI .
8. Qualitative Analysis: Mixture of four radicals excluding insoluble and interfering radicals using semi-micro techniques.

9. **Preparations.**

1. Lead Chromite.
2. Ferrous Sulphate from Kipp's residue.
3. Potash Alum.
4. Microcosmic Salt.

Subject Specific Course		
Organic Chemistry	Credit Hours:3(2+1)	Course Code: SSC-2

Course Contents;

I. Classifications Fundamental principles and Nomenclature of Organic Compounds (11, PAC)

1. Type of Organic Reactions. Polar, radical, four-Centre types and fragmentation reactions.
2. **Isomerism:** Structural and stereo-Isomerism: Optical Active Configuration. Enantiomers; Optical activity in compounds containing upto 2. asymmetric carbon atoms. Diastereoisomers, Racemization, Resolution of racemic mixtures; Geometrical isomerism. Identification of Cis and trans-isomers and comparison of their stability hyper conjugation.

3. Chemistry of Functional Groups:

Hydrocarbons: Introduction to the Structural aspects of alkenes. Alkenes physical characteristic of first 10 members of each series. Preparation of alkenes by reduction of C=C, C=C=O, C=S, C=X, linkages and decarboxylation of carboxylic acids. Preparation of alkenes by elimination reactions of E1, E2, witting reactions. Wurtz reaction Corey-House Reaction. Reduction of Alkyl Halides, Paralysis of Xanthate esters. Paralysis of amine oxides. Preparation of Alkynes by dehydrohalogenation and dehalogenation reactions.

4. Reactions of:

1. **Alkenes and Cyclo alkenes:** Halogenation; nitration combustion. The concept of Bond energies. Conformational analysis butane. Structure and conformational analysis of cyclohexane.
2. **Alkenes:** Hydrogenation and heats of hydrogenation: Electrophilic addition reaction and orientation of addition, oxidation, ozonization.
3. **Alkynes:** comparison of the reactivity of C-C and C=C; Acidity of acetylenic hydrogen (-C-CH), addition reactions.

II. Aromatic Hydrocarbons; Sources: Physical characteristics structure of Benzene and the concept of Aromaticity; Huckel Rule. Electrophilic substitution reactions. Orientation and reactivity. Applications in Synthesis; Oxidation of side Chain of aromatic hydrocarbons; Elementary treatment of aromaticity of pyridine and comparison of its reactivity with that of benzene. A brief introduction of the chemistry of Naphthalene and Anthracene.

III. Carbonyl compounds: Types of Carbonyl compounds Nature of carbonyl group. Electronic and other effects on C = O reactivity.

Preparation of Aldehydes and acetones: oxidation of alcohols, and other readily oxidizable groups. Reduction of acid chlorides; Grignard reagents; Friedel-Crafts acylation; Hydration of Alkynes; Pinacol-Pinacolone rearrangement.

Preparation of carboxylic acids; Oxidative methods, Grignard reagent, Nitrile synthesis.

Reactions of aldehydes and ketone: Reactivity of carbonyl group. Addition, reactions, Oxidation. Aldol and Cannizzaro's Reactions.

Reaction of carboxylic acids: Strength of carboxylic acid Electronics, Steric and Hydrogen bonding effects of the strength of acids, formation Hydrolysis and Saponification of Esters.

Formation of Acid Halides, Anhydrides, Amides and their use in organic synthesis.

Malonic and acetoacetic ester: Preparation and their important synthetic applications.

IV. Chemistry of Hydroxyl group: Nature of the Hydroxyl group. Alcohols, Phenols and Carboxylic acids. Acidity of Phenols and effect substituents. Physical characteristics of Alcohols and Phenols.

Preparation of Alcohols: Hydration and Hydroboration of Alkenes, Reduction of Carbonyl compounds. Compounds.

Preparation of Phenols: Hydrolysis of chlorobenzene, Diazo Reaction, and Oxidative Procedures.

Reactions: Reactions involving breaking of H, and C-O bond. Reactions of the Aromatic Nucleus.

V. Organic Nitrogen Compounds: Types of simple Nitrogen compounds; amines, Nitro Compounds, Nitrites, Amides, N-heterocyclies (Pyrrol and Pyridine).

Classification, and Physical characteristic of Amines preparation of amines, by Alkylation's of ammonia, Gabriel synthesis, Reduction of Nitrites, Nitro Compounds and Amides, Reactions of amines: Basicity of amines, Acylation, alkylation's. Diazo Reaction and Halogenations.

VI. Diazonium Compounds:

Preparation and Structure:

Reactions and applications in synthesis:

Recommended books:

1. Organic Chemistry Volume one Volume two for B.Sc. Students. Edited by K.M. Ibne-Rosa and M.A. Rehman Publisher Ilmi Kutab Khana, Lahore, 1971.
2. A Text Book of Organic Chemistry By M. Younas and A. Rehman Publisher Ilmi Kutab Khana, Lahore, 1990.
3. Introduction to Stereochemistry By Naser-ud-Din Publisher Ghafoor Stationary Mart, Peshawar, 1991
4. Organic Chemistry By R. T. Morrison and R. N. Boyd Publisher, Allyn & Becan. Inc.
5. Introduction to Acids and Bases for B.Sc. and M.Sc. Students Naseruddin, (INPRESS).

Practicals:

1. Identification of organic compounds containing only one functional group with special emphasis on compounds, containing the following groups:
COOH, -OH, C = O, -NH₂
Identification must be substantiated by the preparation of a derivative (at least 10 compounds.)
2. (a) Basic Techniques for the preparation of Organic compounds.
 - a. Re-crystallization.
 - b. Filtration.
 - c. Fractional distillation.
 - d. Steam distillation.
 - e. Solvent Extraction,
 - f. Sublimation.(b) Preparation involving:
 - (i) Halogenations ... P – bromoacetanilide or tribromophenol.
 - (ii) Substitution of ... N – butyl bromide or tert – butyl Chloride OH by Halogen.
 - (iii) Nitration ... Nitrobenzene, dinitrobenzene.
 - (iv) Reduction of nitro ... Aniline.
 - (v) Acetylation ... Acetanilide/Aspirin.
 - (vi) Oxidation of side chain ... benzoic acid.Preparations are aimed at giving the student an opportunity to learn basic preparative Chemistry.
3. Separation of Cations such as Cobalt, Nickel, Copper, Zinc etc. by paper chromatographic techniques.
4. Quantitative Analysis.
 - i. Volumetric Analysis
 - (a) Oxidation – Reduction, KMnO₄ and K₂ Cr₂ O₇ (with both internal and external indicators)
 - (b) Iodometry
 - (c) Argentometry.

Subject Specific Course		
Physical Chemistry	Credit Hours:3(2+1)	Course Code: SSC-3

Course Contents:

States of Matter

1. Gases: Kinetic theory of gases and derivation of gas law. Non-ideal Behaviour of gases; Van Der Waal equation, the critical temperature and liquefaction of gases. Heat capacities of gases, law of equipartition of energy. Mean free path, collision diameter and collision number.

Liquids: Vapor pressure, viscosity, surfaces tension, refractive index, dipole moment and their measurements.

Solids: the crystal system, the properties of crystal. The Bragg methods of crystal analysis, X-ray analysis of sodium chloride. The powder methods of crystal analysis. Heat capacities of solids Colloids and their properties.

2. Solutions:

Ideal solutions (Raoult's Law), Non-ideal solutions. Henry law, Colligative properties such as relative lowering of vapor pressure, elevation of boiling point, depression of freezing point. Osmotic pressure. (With reference to their thermodynamic treatment). Solubility and heat of solution.

3. Thermodynamics.

Thermodynamics systems and state functions. Work and thermal energy. 1st law of thermodynamics. Isothermal and adiabatic changes. Measurement of enthalpy (H). Relation between E and H. Temperature dependence of H. Reversibility and irreversibility. Cannot cycle and entropy. 2nd Law of thermodynamics. Gibbs free energy, relation between G and equilibrium constant. The causes – clapeyron equation.

4. Chemical Kinetics.

Rate law and its determination by various methods. Order of reaction and molecularity. Derivation of rate equations of 1st and 2nd order reactions. Activation energy and its determination. Collision theory of uni- and bi-molecular reactions. Study of mechanism of a new reaction.

5. Electro – Chemistry.

Equivalent and molar conductance and their measurements. Kohlrausch's law and its applications. Determination of degree of dissociation of weak Electrolytes (Ostwald's dilution law). Ionic mobility's and their determination. Transport numbers and their determination (Hittroff and moving boundary methods). Reversible and irreversible cells, various kinds of reversible electrodes. Measurement of e.m.f. of cells. Buffer solutions. Theories of indicators. pH. Of a solution and its determination by Buffer and indicators.

Recommended Books:

1. Physical Chemistry for B.Sc. students. By Fazli Hussain M. Ghaziuddin Published by Ilmi Kutab Khana, Lahore.
2. Principles of Physical Chemistry 4th Edition. By Samuel H. Maron and Carl F. Prutton. The Macmillan Co. Ltd. London.
3. Physical Chemistry. By Gardon M. Borrow 4th Edition Inter Student Edition
4. Text Books of Physical Chemistry. By Samuel Glasstone 2nd Edition Macmillan and Co. Ltd. London.

Eligibility for Admission: FSc (Pre-Engineering or FA with Computer Science as a subject or Equivalent)

4. Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository writing -1	03	Expository writing -2	03	Expository writing -3	03	Art & Humanities-2	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Art & Humanities-1	03	Calculus-II / DLD	03 2+1
Civilization Course-1	03	Civilization Course-2	03	Calculus-I	03	Discrete Structures	03
Natural Science-1	03	Natural Science-2	03	Programing Fundamentals	03+1	Database System	2+1
Social Science-1	03	Social Science-2	03	Object Oriented Programming	03+1	Professional Practices	03

Subject Specific Course		
Calculus-I	Credit Hours:3(3+0)	Course Code: SSC-1

Course Objective(s):

This course services as the foundation of advance subjects in all areas of Physics. The purpose of this course is to prepare the students to have a basic understanding of various calculus concepts with the essential tools of calculus to apply the concepts and the techniques in their respective disciplines.

Learning Outcomes:

Upon completion of the course, the student will be able to: interpret various concepts of calculus like function from an algebraic, numerical, graphical and verbal perspective and extract information relevant to the phenomenon modeled by the various Calculus concepts

Week 1: Functions and graphs (shifting and stretching),

Week 2: Limits and continuity, differentiation (rates of change,

Week 3: Slope of the tangent to a curve, rules for differentiation,

Week 4: Chain rule, implicit differentiation, extrema of functions,

Week 5: Mean value theorem, simple problems in optimization,

Week 6: Use of derivatives in sketching, asymptotic behavior of functions, L'H'opital's rule), integration (indefinite integrals,

Week 7: Introduction to the idea of differential equations and their solution – the initial value problem, techniques of integration,

Week 8: Riemann sums and definite integrals,

Week 9: Physical interpretation as areas, mean value theorem, areas between curves,

Week 10: Finding volumes by slicing,

Week 11: Volumes of solids of revolution, arc lengths, areas of surfaces of revolution, centres of mass and higher moments, work),

Week 12: Differentiation and integration of transcendental functions (exponential and logarithmic functions and applications to growth and decay problems,

Week 13: Trigonometric and inverse trigonometric functions, hyperbolic functions),

Week 14: Infinite series (limits of sequences of numbers, series,

Week 15: Tests of convergence, power series,

Week 16: Taylor and Maclaurine series.

Recommended Books for Calculus-I & II)

1. G. B. Thomas, R. L. Finney, “Calculus and Analytic Geometry”, National Book Foundation, 9th ed.
2. G. Strang, “Calculus”, Wellesley-Cambridge, 2nd ed., 2010.
3. E. W. Swokowski, M. Olinick, D. Pence, and J. A. Cole, “Calculus”; Pws Pub Co; 6th ed. 1994.

Subject Specific Course		
Programming Fundamentals	Credit Hours:4(3+1)	Course Code: SSC-2

Objectives: To enable the students to program and learn the basic programming concepts. Analyze and explain the behavior of simple programs involving the fundamental programming constructs.

Learning Outcome: Explain Computer Programming concepts, like;

- Ability to design algorithmic solution to problems
- Ability to design programs with Interactive Input and Output
- Ability to design programs utilizing arithmetic expressions
- Ability to design programs utilizing repetition
- Ability to design programs utilizing decision making
- Ability to design programs utilizing arrays
- Ability to develop recursive solutions
- Ability to test and verifying programs
- Ability to develop simple search and sort algorithms

Course Contents:

This course covers overview of Computer Programming, Principles of Structured and Modular Programming, Overview of Structured Programming Languages, Algorithms and Problem Solving, Program Development: Analyzing Problem, Designing Algorithm/Solution, Testing Designed Solution, Translating Algorithms into Programs, Fundamental Programming Constructs, Data Types. Basics of Input and Output, Selection and Decision If, If -Else, Nested If- Else, Switch Statement and Condition Operator), Repetition While and For Loop, Do -While Loops), Break Statement, Continue Statement, Control Structures, Functions, Arrays, Pointers, Records, Files Input-Output), Testing & Debugging.

Reference Materials:

1. C How to Program by Paul Deitel and Harvey Deitel, Prentice Hall; 7 edition (March 4, 2012). ISBN-10: 013299044X
2. Programming in C by Stephen G. Kochan, Addison-Wesley Professional; 4 edition (September 25, 2013). ISBN-10: 0321776410
3. Java How to Program by Paul Deitel and Harvey Deitel, Prentice Hall; 9th edition (March, 2011)
4. C++ How to Program by Paul Deitel and Harvey Deitel, Prentice Hall; 9th edition (February, 2013)

Subject Specific Course		
Object Oriented Programming	Credit Hours:4(3+1)	Course Code: SSC-3

Objectives: To prepare object-oriented design for small/medium scale problems and to demonstrate the differences between traditional imperative design and object oriented design.

Learning Outcome:

- Describe the principles of object-oriented programming
- Apply the concepts of data encapsulation, inheritance, and polymorphism to large-scale software
- Acquire the concepts of Graphical User Interfaces Professional Skill
- Design and develop object-oriented computer programs, and develop programs with Graphical User Interfaces capabilities
- Formulate problems as steps so as to be solved systematically
- Develop software with team-work in mind

Course Outline:

Evolution of Object Oriented Programming (OOP), Object Oriented concepts and principles, problem solving in Object Oriented paradigm, OOP design process, classes, functions/methods, objects and encapsulation; constructors and destructors, operator and function/method overloading, association, aggregation, composition, generalization, inheritance and its types, derived classes, function/method overriding, abstract and concrete classes, virtual functions, polymorphism, exception handling.

Reference Materials:

1. Java: How to Programme, Harvey M. Deitel and Paul J. Deitel, Prentice Hall; 8 edition (March 27, 2009). ISBN-10: 0136053068
2. C++: How to Programme, Prentice Hall; 8 edition March 25, 2011). ISBN - 10: 0132662361
3. Object Oriented Programming in C++ by Robert Lafore, Sams Publishing; 4 edition (December 29, 2001). ISBN-10: 0672323087
4. Java Programming: From the Ground Up by Ralph Bravaco and Shai Simonson, McGrawHill Higher Education New York, 2010, ISBN 978-0-07-352335-4
5. Beginning Java by Ivor Horton, John Wiley & Sons, Inc, 7th Edition, 2011, ISBN: 978-0-470-40414-0

Subject Specific Course		
Digital Logic & Design	Credit Hours:3(2+1)	Course Code: SSC-4

Course Objectives: To introduce the basic tools for design with combinational and sequential digital logic and state machines. To learn simple digital circuits in preparation for computer science.

Learning Outcome:

- Upon successful completion, students will be able to:
- Realize complex logic functions utilizing programmable logic.
- Design machines for the purpose of manipulating data streams.
- Design complex digital systems.

Course Outline:

Number Systems, Logic Gates, Boolean Algebra, Combination logic circuits and designs, Simplification Methods K-Maps, Quinne, Mc-Cluskey,, Flip Flops and Latches, Asynchronous and Synchronous circuits, Counters, Shift Registers, Shift Registers Counters, Triggered devices & its types. 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, etc.

Reference Materials:

1. Digital Fundamentals by Thomas L. Floyd, Prentice Hall; 11th edition.
2. Fundamentals of Digital Logic with Verilog Design by Stephen Brown and Zvonko Vranesic, McGraw-Hill; 3rd Edition February 12, 2013). ISBN -10: 0073380547
3. Digital Fundamentals: A Systems Approach by Thomas L. Floyd, Prentice Hall; (July 13, 2012). ISBN-10: 0132933950
4. Digital Design, by M. Morris Mano, Michael D. Ciletti, 4th Edition, Prentice Hall (2007). ISBN-10: 0131989243
5. Fundamentals of Logic Design by Jr. Charles H. Roth and Larry L Kinney, CL Engineering; 6th Edition (March 13, 2009). ISBN-10: 0495471690

Subject Specific Course		
Discrete Structures	Credit Hours:3(3+0)	Course Code: SSC-5

Objectives: To learn the application of formal logic proofs and/or informal, but rigorous, logical reasoning to real problems. Comprehend discrete structures and their relevance within the context of computer science.

Learning Outcome:

- Use logical notation to define and reason about fundamental mathematical concepts such as sets, relations, functions, and integers.
- Evaluate elementary mathematical arguments and identify fallacious reasoning (not just fallacious conclusions).
- Synthesize induction hypotheses and simple induction proofs.
- Prove elementary properties of modular arithmetic and explain their applications in Computer Science, for example, in cryptography and hashing algorithms.

Course Outline:

Mathematical reasoning: introduction to logic, propositional and predicate calculus; negation disjunction and conjunction; implication and equivalence; truth tables; predicates; quantifiers; natural deduction; rules of Inference; methods of proofs; use in program proving; resolution principle; Set theory: Paradoxes in set theory; inductive definition of sets and proof by induction; Relations, representation of relations by graphs; properties of relations, equivalence relations and partitions; Partial function theory; Elementary combinatorics; counting techniques; recurrence relation; generating functions. Graph Theory: elements of graph theory, Planar Graphs, Graph Colouring, Euler graph, Hamiltonian path, trees and their applications.

Reference Materials:

1. Discrete Mathematical Structure with Application to Computer Science, J. P. Temblay and B Manohar, McGraw-Hill, 2nd Edition.

Subject Specific Course		
Database System	Credit Hours:4(3+1)	Course Code: SSC-6

Objectives: To understand several requirement and operations that the analyst needed to analyze, design, and implement the database systems thru DBMS.

Learning Outcome

- Able to master the basic concepts and understand the applications of database systems.
- Able to construct an Entity-Relationship (E-R) model from specifications and to perform the transformation of the conceptual model into corresponding logical data structures.
- Able to understand the basic database storage structures and access techniques.
- Able to distinguish between good and bad database design, apply data normalization principles, and be aware of the impact of data redundancy on database integrity and maintainability.
- Able to construct queries and maintain a simple database using SQL.
- Able to apply database transaction management and database recovery.

Course Outline:

Basic Database Concepts, Database Architecture, DB Design Life Cycle, Schema Architecture, Conceptual, Logical and Physical Database Modelling and Design, , Entity Relationship Diagram ERD, Enhanced ERD, Relational Data Model, Mapping ERD to Relational Model, Functional Dependencies and Normalization, Relational Algebra, Structured Query Language SQL), Transaction Processing, Concurrency Control And Recovery Techniques, Query Optimization Concepts.

Reference Materials:

1. Database Systems A Practical Approach to Design, Implementation, and Management, Thomas Connolly and Carolyn Begg, Prentice Hall; 7th edition (March 10, 2011)
2. Modern Database Management by Fred McFadden, Jeffrey Hoofer, Mary Prescott, Prentice Hall; 11th Edition (July 26, 2012). ISBN-10: 0132662256
3. Fundamentals of Database Systems by R. Elmasri and S. Navathe. 6th Edition, AddisonWesley (2010). ISBN-10: 0136086209.
4. Database Design and Relational Theory: Normal Forms and All That Jazz by C. J. Date, O'Reilly Media; 1st Edition (April 24, 2012). ISBN-10: 1449328016.
5. Modern Database Management by Fred McFadden, Jeffrey Hoofer, Mary Prescott, Prentice Hall; 11th Edition (July 26, 2012). ISBN-10: 0132662256

Subject Specific Course		
Professional Practices	Credit Hours:3(2+1)	Course Code: SSC-7

Objectives: To learn the professional approach of software development using latest technologies, security and copyright issues etc. The role of ethics in software development.

Learning Outcome: At the completion of this course, students will be able to:

- Work proficiently and effectively in small teams;
- Understand the need for lifelong learning for continuous professional development;
- Present technical material in an interesting manner for a non-technical audience;
- Explain in basic terms the ethical responsibilities of professional engineers and apply this knowledge in simple scenarios.

Course Outline:

Computing Profession, Computing Ethics, Philosophy of Ethics. The Structure of Organizations, Finance and Accounting, Anatomy of a Software House, Computer Contracts, Intellectual Property Rights, The Framework of Employee Relations Law and Changing Management Practices, Human Resource Management and IT, Health and Safety at Work, Software Liability, Liability and Practice, Computer Misuse and the Criminal Law, Regulation and Control of Personal Information. Overview of the British Computer Society Code of Conduct, IEEE Code of Ethics, ACM Code of Ethics and Professional Conduct, ACM/IEEE Software Engineering Code of Ethics and Professional Practice. Accountability and Auditing, Social Application of Ethics.

Reference Materials:

1. Professional Issues in Software Engineering by Frank Bott, Allison Coleman, Jack Eaton and Diane Rowland, CRC Press; 3rd Edition 2000). ISBN-10: 0748409513
2. Computer Ethics by Deborah G. Johnson, Pearson; 4th Edition January 3, 2009). ISBN10: 0131112414
3. A Gift of Fire: Social, Legal, and Ethical Issues for Computing and the Internet 3rd Edition) by Sara Baase, Prentice Hall; 3rd Edition 2008). ISBN-10: 0136008488
4. Applied Professional Ethics by Gregory R. Beabout, University Press of America 1993). ISBN -10: 0819193747.
5. The Dark Side of Software Engineering: Evil on Computing Projects by Johann Rost and Robert L. Glass, Wiley-IEEE Computer Society Pr; 1st Edition (2011. ISBN -10: 0470597178

Eligibility for Admission: FSc (Pre-Engineering or FA with Mathematics as a subject or Equivalent)

Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository writing -1	03	Expository writing -2	03	Expository writing -3	03	Art & Humanities-2	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Art & Humanities-1	03	Calculus-II	03
Civilization Course-1	03	Civilization Course-2	03	Calculus-I	03	Elements of Set Theory and	03

Scheme of Studies for Associate Degree Program, 2020 and onward

						Mathematical Logic	
Natural Science-1	03	Natural Science-2	03	Discrete Mathematics	03	Algebra-I	03
Social Science-1	03	Social Science-2	03	Number Theory	03	Vector and Tensor Analysis	03

Subject Specific Course		
Discrete Mathematics	Credit Hours:3(3+0)	Course Code: SSC-2

Course Objectives:

Discrete Mathematics is study of distinct, un-related topics of Mathematics; it embraces topics from early stages of mathematical development and recent additions to the discipline as well. The present course restricts only to counting methods, relations and graphs. The objective of the course is to inculcate in the students the skills that are necessary for decision making in non-continuous situations.

Learning Outcomes:

This is an introductory course on discrete mathematics. Students will learn:

- Some fundamental mathematical concepts;
- How to use and analyze recursive definitions;
- How to count some different types of discrete structures;
- Techniques for constructing mathematical proofs, illustrated by discrete mathematics examples.

Course Contents:

Week	Topics	Remarks
1.	The Foundations: Logic, propositional equivalences,	
2.	Predicates and quantifiers, method of proof,	Assignment related to the topics
3.	Sets, set operations, functions.	
4.	Counting methods: Basic methods: product, inclusion-exclusion formulae,	Quiz
5.	Permutations and combinations, Recurrence relations and their solutions, recursive algorithm.	Assignment related to the topics
6.	Generating functions, Double counting. Applications,	
7.	Pigeonhole principle, applications.	Quiz
8.	Mid Term Exam	
9.	Relations: Binary relations, n-ary Relations, Closures of relations,	Quiz
10.	Composition of relations, inverse relation.	Assignment related to the topics
11.	Graphs: Graph terminology. Representation of graphs. Graphs isomorphism.	Quiz
12.	Algebraic methods: the incidence matrix. Connectivity,	Assignment related to the topics
13.	Eulerian and Hamiltonian paths. Shortest path problem.	Quiz
14.	Trees and spanning trees.	Presentations
15.	Complete graphs and bivalent graphs.	Assignment related to the topics
16.	Boolean algebra: Boolean functions, representing Boolean functions	Presentations
17.	logic gates, minimization of circuits.	Presentations
18.	Final Term Exam	

Recommended Books:

1. B. Bollobas, Graph Theory, Springer Verlag, New York, 1979.
2. K.R. Parthasarathy, Basic Graph Theory, McGraw-Hill, 1994
3. K.H. Rosen, Discrete Mathematics and its Application, McGraw-Hill, 6th edition, 2007.
4. B. Kolman, R.C. Busby, S.C. Ross, Discrete Mathematical Structures, Prentice-Hall of India, New Delhi, 5th edition, 2008.
5. A. Tucker, Applied Combinatorics, John Wiley and Sons, Inc New York, 2002.
6. R. Diestel, Graph Theory, 4th edition, Springer- Verlag, New York, 2010.
7. N.L. Briggs, Discrete Mathematics, Oxford University Press, 2003
K.A. Ross, C.R.B. Wright, Discrete Mathematics, Prentice Hall, New Jersey, 2003.

Subject Specific Course		
Linear Algebra	Credit Hours:3(3+0)	Course Code: SSC-3

Course Objectives:

Linear algebra is the study of vector spaces and linear transformations. The main objective of this course is to help students learn in rigorous manner, the tools and methods essential for studying the solution spaces of problems in mathematics, engineering, the natural sciences, and social sciences and develop mathematical skills needed to apply these to the problems arising within their field of study; and to various real world problems.

Learning Outcomes: On successful completion of this course students will be able:

- To solve systems of linear equations by using Gaussian elimination to reduce the augmented matrix to row echelon form or to reduced row echelon form.
- To understand the basic ideas of vector algebra: linear dependence and independence and spanning;
- To apply the basic techniques of matrix algebra, including finding the inverse of an invertible matrix using Gauss-Jordan elimination;
- To know how to find the row space, column space and null space of a matrix, and be familiar with the concepts of dimension of a subspace and the rank and nullity of a matrix, and to understand the relationship of these concepts to associated systems of linear equations.
- To find the eigenvalues and eigenvectors of a square matrix using the characteristic polynomial and will know how to diagonalize a matrix when this is possible be able to recognize and invert orthogonal matrices be able to orthogonally diagonalize symmetric matrices be able to find the change-of-basis matrix with respect to two bases of a vector space be familiar with the notion of a linear transformation and its matrix.

Course Contents:

Week	Topics	Remarks
1.	System of Linear Equations: Representation in matrix form. Matrices. Operations on matrices.	
2.	Echelon and reduced echelon form. Inverse of a matrix (by elementary row operations).Solution of linear system.	Assignment related to the topics
3.	Gaussian elimination. Gauss-Jordan method.	
4.		Quiz
5.	Determinants: Permutations of order two and three and definitions of determinants of the same order.	Assignment related to the topics
6.	Computing of determinants. Definition of higher order determinants.	
7.	Properties. Expansion of determinants.	Quiz
8.	Mid Term Exam	
9.	Vector Spaces: Definition and examples, subspaces. Linear combination and spanning set.	Quiz
10.	Linearly Independent sets. Finitely generated vector spaces. Bases and dimension of a vector space.	Assignment related to the topics

11.	Operations on subspaces, Intersections, sums and direct sums of subspaces. Quotient Spaces. Linear mappings: Definition and examples.	Quiz
12.	Kernel and image of a linear mapping. Rank and nullity.	Assignment related to the topics
13.	Reflections, projections, and homotheties. Change of basis.	Quiz
14.	Eigen-values and eigenvectors. Theorem of Hamilton-Cayley.	Presentations
15.	Inner product Spaces: Definition and examples. Properties, Projection.	Assignment related to the topics
16.	Cauchy inequality. Orthogonal and orthonormal basis.	Presentations
17.	Gram Schmidt Process. Diagonalization	Presentations
18.	Final Term Exam	

Recommended Books:

1. Ch. W. Curtis, Linear Algebra, Springer 2004.
2. T. Apostol, Multi Variable Calculus and Linear Algebra, 2nd ed., John Wiley and sons, 1997.
3. H. Anton, C. Rorres, Elementary Linear Algebra: Applications Version, 10th Edition, John Wiley and sons, 2010.
4. S. Friedberg, A. Insel, Linear Algebra, 4th Edition, Pearson Education Canada, 2003.
5. S. I. Grossman, Elementary Linear Algebra, 5th Edition, Cengage Learning, 2004.

Subject Specific Course		
Number Theory	Credit Hours:3(3+0)	Course Code: SSC-4

Course Objectives:

The focus of the course is on study of the fundamental properties of integers and develops ability to prove basic theorems. The specific objectives include study of division algorithm, prime numbers and their distributions, Diophantine equations, and the theory of congruences.

Learning Outcomes: Upon successful completion of Number Theory, a student will be able to:

- Define and interpret the concepts of divisibility, congruence, greatest common divisor, prime, and prime-factorization,
- Apply the Law of Quadratic Reciprocity and other methods to classify numbers as primitive roots, quadratic residues, and quadratic non-residues,
- Formulate and prove conjectures about numeric patterns, and
- Produce rigorous arguments (proofs) centered on the material of number theory, most notably in the use of Mathematical Induction and/or the Well Ordering Principal in the proof of theorems.

Course Contents:

Week	Topics	Remarks
1.	Preliminaries: Well-ordering principle. Principle of finite induction.	
2.	Divisibility theory: The division algorithms. Basis representation theorem.	Assignment related to the topics
3.	Prime and composite numbers. Canonical decomposition. The greatest common divisor	
4.	The Euclidean algorithm. The fundamental theorem of arithmetic. Least common multiple.	Quiz
5.	Linear Diophantine equations: Congruences. Linear congruences.	Assignment related to the topics
6.	System of linear congruences.	
7.	The Chinese remainder theorem. Divisibility tests. Solving polynomial congruences.	Quiz
8.	Mid Term Exam	
9.	Fermat's and Euler's theorems. Wilson's theorem.	Quiz
10.	Arithmetic functions: Euler's phi-function	Assignment related to the topics
11.	The functions of J and sigma. The Mobius function	Quiz
12.	The sieve of Eratosthenes. Perfect numbers. Fermat and Mersenne primes.	Assignment related to the topics
13.	Primitive Roots and Indices: The order of an integer mod n . Primitive roots for primes.	Quiz
14.	Composite numbers having primitive roots. Quadratic residues: Legendre symbols and its properties	Presentations
15.	The quadratic reciprocity law. Quadratic	Assignment related to the topics
16.	Congruences with composite moduli. Pythagorean triples.	Presentations

17.	Representing numbers as sum of two squares.	Presentations
18.	Final Term Exam	

Recommended Books:

1. D.M. Burton, Elementary Number Theory, McGraw-Hill, 2007.
2. W.J. Leveque, Topics in Number Theory, vols. I and II, Addison- Wesley, 1956.
3. S.B. Malik , Basic Number Theory, Vikas Publishing house, 1995.
4. K.H. Rosen, Elementary Number Theory and its Applications, 5th edition, Addison- Wesley, 2005.
5. I. Niven, H.S. Zuckerman, H.L. Montgomery, An Introduction to the theory of Numbers, John Wiley and Sons, 1991.
6. A. Adler, J.E. Coury, The Theory of Numbers, Jones and Bartlett Publishers, 1995.

Subject Specific Course		
Calculus-II	Credit Hours:3(3+0)	Course Code: SSC-5

Course Objectives:

This is second course of Calculus. As continuation of Calculus I, it focuses on techniques of integration and applications of integrals. The course also aims at introducing the students to infinite series, parametric curves and polar coordinates.

Learning Outcomes: Upon successful completion of Calculus II, a student will be able to:

- Define, graph, compute limits of, differentiate, and integrate transcendental functions,
- Examine various techniques of integration and apply them to definite and improper integrals,
- Approximate definite integrals using numerical integration techniques and solve related problems,
- Model physical phenomena using differential equations,
- Define, graph, compute limits of, differentiate, integrate and solve related problems involving functions represented parametrically or in polar coordinates,
- Distinguish between the concepts of sequence and series, and determine limits of sequences and convergence and approximate sums of series, and
- Define, differentiate, and integrate functions represented using power series expansions, including Taylor series, and solve related problems.

Course Contents:

Week	Topics	Remarks
1.	Techniques of integration: Integrals of elementary, hyperbolic, trigonometric, logarithmic and exponential functions.	
2.	Integration by parts, substitution and partial fractions.	Assignment related to the topics
3.	Approximate integration, Improper integrals, Gamma functions	
4.	Applications of integrals: Area between curves, average value. Volumes, Arc length	Quiz
5.	Area of a surface of revolution. Applications to Economics, Physics, Engineering and Biology	Assignment related to the topics
6.	Infinite series: Sequences and series. Convergence and absolute convergence	
7.	Tests for convergence: divergence test	Quiz
8.	Mid Term Exam	
9.	Integral test, p-series test, comparison test, limit comparison test, alternating series test, ratio test, root test. Power series	Quiz
10.	Convergence of power series. Representation of functions as power series. Differentiation and integration of power series.	Assignment related to the topics
11.	Taylor and McLaurin series, Approximations by Taylor polynomials	Quiz
12.	Conic section, parameterized curves and polar coordinates: Curves defined by parametric equations	Assignment related to the topics
13.	Calculus with parametric curves: tangents, areas, arc length.	Quiz

14.	Polar coordinates.	Presentations
15.	Polar curves,	Assignment related to the topics
16.	Tangents to polar curves	Presentations
17.	Areas and arc length in polar coordinates	Presentations
18.	Final Term Exam	

Recommended Books:

1. Thomas, Calculus, 11th Edition. Addison Wesley Publishing Company, 2005
2. H. Anton, I. Bevens, S. Davis, Calculus, 8th Edition, John Wiley & Sons, Inc. 2005
3. Hughes-Hallett, Gleason, McCallum, et al, Calculus Single and Multivariable, 3rd Edition. John Wiley & Sons, Inc. 2002.
4. Frank A. Jr, Elliott Mendelson, Calculus, Schaum's outlines series, 4th Edition, 1999
5. C.H. Edward and E.D Penney, Calculus and Analytics Geometry, Prentice Hall, Inc. 1988
6. E. W. Swokowski, Calculus with Analytic Geometry, PWS Publishers, Boston, Massachusetts, 1983.
7. M. Liebeck, A Concise introduction to pure Mathematics, CRC Press, 2011.
8. A. Kaseberg, Intermediate Algebra, Thomson Brooks/COLE, 2004.
- J. Stewart, Calculus early transcendentals, 7th Edition, Brooks/COLE, 2008.

Subject Specific Course		
Elements of Set Theory and Mathematical Logic	Credit Hours:3(3+0)	Course Code: SSC-6

Specific Objectives of course: Everything mathematicians do can be reduced to statements about sets, equality and membership which are basics of set theory. This course introduces these basic concepts.

Learning Outcomes: Upon successful completion of the course, students will be familiar with cardinals, relations and fundamentals of propositional and predicate logics.

Course Outlines:

Week	Topics	Remarks
1.	Set theory: Sets, subsets, operations with sets: union,	
2.	Intersection, difference, symmetric difference, Cartesian product and disjoint union.	Assignment related to the topics
3.	Computing cardinals: Cardinality of Cartesian product, Cardinality of all functions from a set to another set.	
4.	Cardinality of all injective, surjective and bijective functions from a set to another set.	Quiz
5.	Infinite sets, finite sets. Countable sets, properties, examples (\mathbb{Z} , \mathbb{Q}). \mathbb{R} is not countable. \mathbb{R} , $\mathbb{R} \times \mathbb{R}$, $\mathbb{R} \times \mathbb{R} \times \mathbb{R}$ have the same cardinal.	Assignment related to the topics
6.	Operations with cardinal numbers. Cantor-Bernstein theorem.	
7.	Relations: Equivalence relations, partitions, quotient set;	Quiz
8.	Mid Term Exam	
9.	Examples, parallelism, similarity of triangles.	Quiz
10.	Order relations, min, max, inf, sup; linear order. Examples: \mathbb{N} , \mathbb{Z} , \mathbb{R} , $\mathcal{P}(A)$.	Assignment related to the topics
11.	Well-ordered sets and induction. Inductively ordered sets and Zorn's lemma.	Quiz
12.	Mathematical logic: Beginning Mathematical Logic, Propositional Calculus. Truth tables. Predicate Calculus.	Assignment related to the topics
13.	First-Order Logic	Quiz
14.	First-Order Logic (continued)	Presentations
15.	Boolean Algebras	Assignment related to the topics
16.	Model Theory	Presentations
17.	Recursion Theory	Presentations
18.	Final Term Exam	

Recommended Books:

1. M. Liebeck, A Concise Introduction to Pure Mathematics, CRC Press, 2011.
2. N. L. Biggs, Discrete Mathematics, Oxford University Press, 2002.
3. R. Garnier, J. Taylor, Discrete Mathematics, Chapters 1,3,4,5, CRC Press, 2010.
4. A.A. Fraenkel, Abstract Set Theory, North-Holland Publishing Company, 1966.
5. P. Suppes, Axiomatic Set Theory, Dover Publication, 1972.
6. P.R. Halmos, Naive Set Theory, New York, Van Nostrand, 1950.
7. B. Rotman, G.T. Kneebone, The Theory of sets and Transfinite Numbers, Oldbourne London, 1968.

8. D. Smith, M. Eggen, R.St. Andre, A Transition to Advanced Mathematics, Brooks/Cole, 2001.
9. Shashi Mohan Srivastava, A Course on Mathematical Logic, Springer, New York, NY, 2013

Subject Specific Course		
Algebra-I	Credit Hours:3(3+0)	Course Code: SSC-7

Course Objectives:

This course introduces basic concepts of groups and their homomorphisms. The main objective of this course is to prepare students for courses which require a good background in group theory like Rings and Modules, Linear Algebra, Group Representation, Galois Theory etc.

Learning Outcomes: Demonstrate knowledge of basic concepts such as Abelian groups, normal subgroups, quotient groups and Permutations. Demonstrate knowledge of group homomorphisms and the role of homomorphism as a unifying principle in Group Theory. And to concentrate on Lagrange's theorem, some basic structure of algebra and uses.

Course Contents

Week	Topics	Remarks
1.	Groups: Definition of a group, subgroup,	
2.	Subgroup generated by a set	Assignment related to the topics
3.	The cyclic groups, cosets	
4.	Lagrange's theorem	Quiz
5.	Normalizer centralizer. The center of a group	Assignment related to the topics
6.	Equivalence relation in a group, conjugacy classes	
7.	Normal subgroups, quotient group.	Quiz
8.	Mid Term Exam	
9.	Group homomorphism's: Homomorphism and isomorphism	Quiz
10.	Automorphism	Assignment related to the topics
11.	Kernel and image of homomorphism	Quiz
12.	Isomorphism theorems	Assignment related to the topics
13.	Permutation groups	Quiz
14.	The cyclic decomposition of a permutation group	Presentations
15.	Cayley's theorem	Assignment related to the topics
16.	Direct product of two groups and examples	Presentations
17.	Continue...	Presentations
18.	Final Term Exam	

Recommended Books:

1. J. Rose, A Course on Group Theory, Cambridge University Press, 2012.
2. I. N. Herstein, Topics in Algebra, Xerox Publishing Company, 2nd edition, Wiley & Sons, 1975.
3. P. M. Cohn, Basic Algebra, John Wiley and Sons, London, 2003 edition.
4. P. B. Bhattacharya, S. K. Jain and S. R. Nagpaul, Basic Abstract Algebra, Cambridge University Press, 1986.
6. J. B. Fraleigh, A First Course in Abstract Algebra, Addison Wesley Publishing Company, 2002.
7. Vivek Sahai and Vikas Bist, Algebra, Narosa Publishing House, 1999.
8. D. S. Dummit and R. M. Foote, Abstract Algebra, 3rd Edition, Addison-Wesley Publishing Company, 2004.

Subject Specific Course

Vector & Tensor Analysis	Credit Hours:3(3+0)	Course Code: SSC-8
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Background and Goals:

This course shall assume background in calculus. It covers basic principles of vector analysis, which are used in mechanics.

Learning Outcomes: Upon completion the course, students will be able to solve different problem in vector analysis. Students will also be familiar with tensor analysis as well. Students can easily use and successfully apply green's theorem, stock's theorem and Gauss divergence theorem to other science and engineering problems.

Course Contents:

Week	Topics	Remarks
1.	3-D vectors, basic notions and definitions, dot and cross product, linear dependence and independence	
2.	vectors as quantities transforming under rotations with notation,	Assignment related to the topics
3.	scalar-and vector-triple products, scalar- and vector-point functions,	
4.	differentiation and integration of vectors	Quiz
5.	line integrals, path independence, surface integrals	Assignment related to the topics
6.	volume integrals, gradient	
7.	divergence and curl with physical significance and applications	Quiz
8.	Mid Term Exam	
9.	vector identities, Green's theorem in a plane	Quiz
10.	divergence theorem, Stokes' theorem	Assignment related to the topics
11.	coordinate systems and their bases, the spherical-polar- and the cylindrical-coordinate meshes,	Quiz
12.	summation convention, kronecker delta, Levi-Caveat symbol, alternating symbol, relation between alternating symbol and kronecker delta	Assignment related to the topics
13.	tensors of first, second and higher orders, algebra of tensors	Quiz
14.	contraction of tensor, quotient theorem, quotient theorem, symmetric and skew-symmetric tensors	Presentations
15.	invariance property, isotropic tensors, differentiation of tensors, application of tensors in modeling anisotropic systems	Assignment related to the topics
16.	study of physical tensors (moment of inertia, index of refraction, etc.),	Presentations
17.	diagonalization of inertia tensor as aligning coordinate frame with natural symmetries of the system	Presentations
18.	Final Term Exam	

Recommended Books:

1. Bourne DE, Kendall PC, *Vector Analysis and Cartesian Tensors* (2nd edition), Thomas Nelson, 1992.
2. Shah NA, *Vector and Tensor Analysis*, A-One Publishers, Lahore, 2005.

3. Smith GD, *Vector Analysis*, Oxford University Press, Oxford
4. Spiegel MR, *Vector Analysis*, McGraw Hill, New York, 1974.
5. Murray Spiegel and Seymour Lipschutz, *Schaum's Outline of Vector Analysis*, 2nd edition, 2009.

Eligibility for Admission: FSc (Pre-Engineering or equivalent)

Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository writing -1	03	Expository writing -2	03	Expository writing -3	03	Art & Humanities-2	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Art & Humanities-1	03	Calculus-II	03
Civilization Course-1	03	Civilization Course-2	03	Calculus-I	03	Heat & Thermodynamics	03
Natural Science-1	03	Natural Science-2	03	Mechanics	04	Waves & Oscillations	03
Social Science-1	03	Social Science-2	03	Introduction to Programing for Physics	03	Electricity and Magnetism	03

Subject Specific Course		
Mechanics	Credit Hours:4(4+0)	Course Code: SSC-2

Objectives:

The main objective of this course is to understand the different motions of objects on a macroscopic scale and to develop simple mathematical formalisms to analyze such motions. This is a calculus-based introductory course with maximum emphasis on applying the acquired knowledge to solving problems.

Learning Outcomes:

After studying this course, the student will understand the different motions of objects on a macroscopic scale and to develop simple mathematical formalisms to analyze such motions, and to lay the foundations for further studies in Physical Sciences and Engineering.

Week 1: Basic Concepts: Units and Dimensions, SI Units, Changing Units, Scalars and Vectors, Adding Vectors: Graphical as well as Component Method, Multiplying Vectors: Dot and Cross Products.

Week 2: Motion in One, Two and Three Dimensions: Position & Displacement, Velocity and Acceleration, Motion under Constant Acceleration, Projectile Motion.

Week 3: Uniform Circular Motion, Relative Velocity and Acceleration in One and Two Dimensions, Inertial and Non-Inertial reference frames.

Week 4: Newton's Laws: Newton's Laws of Motion and their Applications involving some particular forces including Weight.

Week 5: Normal Force, Tension, Friction, and Centripetal Force, Newton's Law of Gravitation, Gravitational Potential Energy, Escape Velocity, Kepler's Laws, Satellite Orbits & Energy.

Week 6: Work and Kinetic Energy: Work done by Constant and Variable Forces: Gravitational and Spring Forces, Power, Conservative and Non-conservative Forces, Work and Potential Energy

Week 7: Isolated Systems and Conservation of Mechanical Energy, Work Done by External Forces including Friction and Conservation of Energy.

Week 8: System of Particles, Motion of a System of Particles and Extended Rigid Bodies, Center of Mass and Newton's Laws for a System of Particles.

Week 9: Linear Momentum, Impulse, Momentum & Kinetic Energy in One and Two-Dimensional Elastic and Inelastic Collisions.

Week 10: Rotational Motion Rotation about a Fixed Axis, Angular Position, Angular Displacement

Week 11: Angular Velocity and Angular Acceleration, Rotation under Constant Angular Acceleration, relationship between Linear and Angular Variables.

Week 12: Rotational Inertia, Parallel-axis Theorem, Torque and Newton's Law for Rotation, Work and Rotational Kinetic Energy, Power, Rolling Motion.

Week 13: Angular Momentum for a single Particle and a System of Particles, Conservation of Angular Momentum Precession of a Gyroscope.

Week 14: Static Equilibrium involving Forces and Torques, Determination of moment of inertia of various shapes i.e. for disc, bar and solid sphere.

Week 15: Angular Momentum, Angular Velocity, Conservation of angular momentum, effects of Torque and its relation with angular momentum.

Week 16: Simple Harmonic Motion (SHM): Amplitude, Phase, Angular Frequency, Velocity and Acceleration in SHM, Linear and Angular Simple Harmonic Oscillators, Energy in SHM, Simple Pendulum, Physical Pendulum, SHM and Uniform Circular Motion, Damped Harmonic Oscillator.

Recommended Books:

1. D. Halliday, R. Resnick and J. Walker, "Fundamentals of Physics", John Wiley & Sons, 9th ed. 2010.
2. R. A. Serway and J. W. Jewett, "Physics for Scientists and Engineers", Golden Sunburst Series, 8th ed. 2010.
3. R. A. Freedman, H. D. Young, and A. L. Ford (Sears and Zeemansky), "University Physics with Modern Physics", Addison-Wesley-Longman, 13th International ed. 2010.
4. F. J Keller, W. E. Gettys and M. J. Skove, "Physics: Classical and Modern, McGraw Hill. 2nd ed. 1992.
5. D. C. Giancoli, "Physics for Scientists and Engineers, with Modern Physics", Addison-Wesley, 4th ed. 2008.

Subject Specific Course		
Introduction to Programming for Physics	Credit Hours:3(3+0)	Course Code: SSC-3

Objectives:

This course aims to familiarize students with the fundamental concepts of computer programming and program execution and to enable the student to develop simple computer programs.

Learning Outcomes:

After studying this course the students will have fundamental concepts of computer programming and program execution. The students will also be able to develop simple computer programs.

Week 1-4: Introduction to programming, Significance of computers in the present physical sciences scenario, Software and hardware domains, Scientific computing, high and low level languages, flow charts, scientific programming languages, C/C++ and other scientific

Week 5-6: Programming language, Memory management in C++, structure of C++ program, Generic form, Header files, Constants,

Week 7-8: Local variables, Input/output statements, Simple program, Variables, Data types, variables, Operators, Loops, Break, Continue,

Week 9-10: If and if-else statements, Conditional operator, Switch statement, Flags and conditional testing, One-dimensional arrays,

Week 11-12: Multi-dimensional arrays, String manipulation functions, Arrays as lists, Sorting, Searching, functions, built-in and user defined functions,

Week 13-16: File system, pointer, inheritance, polymorphism, C++ for scientific programming. Lab work.

Recommended Books:

1. Deitel H M and P J Deitel, 2012, *C++ How to Program, 8/e, Early Objects Version*, Prentice Hall
2. Robert Lafore, 2002, *Object-oriented Programming in C++*, Ed. 4th, SAMS publishers.
3. Robert L, *TURBO C++*, 1991, Waite Group.
4. Harrison S P and G Steele Jr. 1987, *C: A Reference Manual*, Prentice-Hall.
5. Peter Norton, *Introduction to computers*, 6th Ed., McGraw Hill International Edition.

Subject Specific Course		
Heat and Thermodynamics	Credit Hours:3(3+0)	Course Code: SSC-5

Objective(s)

The objective of this course is to approach the thermodynamics properties of a system from the statistical point of view. Students will be taught to address problems of systems consisting of large number of particles by studying their collective behavior.

Learning Outcomes:

After studying this course the students will be able to understand the fundamentals of heat and thermodynamics. And to lay the foundations for further studies in Physical Sciences and Engineering.

Week 1: Basic Concepts and Definitions in Thermodynamics: Thermodynamic system, Surrounding and Boundaries. Type of systems. Macroscopic and microscopic description of system. Properties and state of the substance:

Week 2: Extensive and Intensive properties, Equilibrium, Mechanical and Thermal Equilibrium. Processes and Cycles: Isothermal, Isobaric and Isochoric.

Week 3: The state of the system at Equilibrium, Heat and Temperature, Temperature, Kinetic theory of ideal gas,

Week 4: Work done on an ideal gas, Review of previous concepts. Internal energy of an ideal gas:

Week 5: Equipartition of Energy, Intermolecular forces, Qualitative discussion,

Week 6: The Virial expansion, The Van der Waals equation of state.

Week 7: Thermodynamics, First law of thermodynamics and its applications to adiabatic, isothermal

Week 8: Cyclic and free expansion. Reversible and irreversible processes. Second law of thermodynamics

Week 9: Carnot theorem and Carnot engine. Heat engine, Refrigerators. Calculation of efficiency of heat engines.

Week 10: Thermodynamic temperature scale: Absolute zero, Entropy, Entropy in reversible process

Week 11: Entropy in irreversible process. Entropy and Second law of thermodynamics, Entropy and Probability.

Week 12: Thermodynamic Functions, Thermodynamic functions Internal energy Enthalpy,

Week 13: Gibb's functions, Entropy, Helmholtz functions

Week 14: Maxwell's relations, TdS equations, Energy equations and their applications.

Week 15: Low Temperature Physics, Joule-Thomson effect and its equations. Thermoelectricity: **Week 16:** Thermocouple, Seebeck's effect, Peltier's effect, Thomson effect.

Recommended Books:

1. D. Halliday, R. Resnick and K. Krane, "Physics", John Wiley, 5th ed. 2002.
2. D. Halliday, R. Resnick and J. Walker, "Fundamentals of Physics", John Wiley, 9th ed. 2010.
3. M. W. Zemansky, "Heat and Thermodynamics", Mc Graw Hill, 7th ed. 1997.
4. M. Sprackling, "Thermal Physics" McMillan 1991.
5. B. N. Roy, "Principle of Modern Thermodynamics", Institute of Physics, London 1995.

Subject Specific Course		
Waves and Oscillations	Credit Hours:3(3+0)	Course Code: SSC-6

Objective(s):

To develop a unified mathematical theory of oscillations and waves in physical systems.

Learning Outcomes:

After Studying this course, the students will learn to develop a unified mathematical theory of oscillations and waves in physical systems. And to lay the foundations for further studies in Physical Sciences and Engineering.

Week 1: Introduction to basic concepts, Simple and Damped Harmonic Oscillation

Week 2: Mass-Spring System, Simple Harmonic Oscillator Equation

Week 3: Complex Number Notation, LC Circuit, Simple Pendulum, Quality Factor, LCR circuit.

Week 4: Forced Damped Harmonic Oscillation: Steady-State Behavior, Driven LCR Circuit

Week 5: Transient Oscillator Response, Resonance, Coupled Oscillations

Week 6: Coupled Oscillations, Two Spring-Coupled Masses, Two Coupled LC Circuits

Week 7: Three Spring Coupled Masses, Normal Modes, Atomic and Lattice Vibrations.

Week 8: Transverse Waves: Transverse Standing Waves, Normal Modes, General Time Evolution of a Uniform String,

Week 9: Phase velocity, Group Velocity. Longitudinal Waves, Spring Coupled Masses, Sound Waves in an Elastic

Week 10: Solid, Sound Waves in an Ideal Gas. Traveling Waves, Standing Waves in a Finite Continuous Medium, Traveling

Week 11: Waves in an Infinite Continuous Medium, Energy Conservation, Transmission, Lines,

Week 12: Reflection and Transmission at Boundaries, Electromagnetic Waves.

Week 13: Wave Pulses, Fourier series and Fourier Transforms, Bandwidth,

Week 14: Heisenberg's Uncertainty Principle, Multi-Dimensional Waves, Plane Waves

Week 15: Three-Dimensional Wave Equation, Laws of Geometric Optics, wave guides.

Week 16: Cylindrical Waves. Interference and Diffraction of Waves: Double-Slit Interference, Single-Slit Diffraction.

Recommended Books:

1. J. Pain, "The Physics of Vibrations and Waves", John Wiley, 6th ed. 2005.
2. P. French, "Vibrations and Waves", CBS Publishers (2003).
3. F. S. Crawford, Jr., "Waves and Oscillations", Berkeley Physics Course, Vol. 3, McGraw-Hill, 1968.
4. A. Hirose, and K. E. Lonngren, "Introduction to Wave Phenomena", Krieger Publications, 2003.

Subject Specific Course		
Electricity and Magnetism	Credit Hours:3(3+0)	Course Code: SSC-7

Objective(s):

To understand the basic ideas of electromagnetism and the phenomenon's associated with Electric and Magnetic fields.

Learning Outcomes: After studying this subject, the student will learn to understand the basic ideas of electromagnetism and the phenomenon's associated with Electric and Magnetic fields.

Week 1: Electrostatics Electric Charge, Conductors and Insulators, Coulomb's Law, Electric Fields due to a Point Charge and an Electric Dipole, Electric Field due to a Charge Distribution, Electric Dipole in an Electric Field, Electric Flux

Week 2: Gauss' Law and its Applications in Planar, Spherical and Cylindrical Symmetry.

Week 3: Electric Potential, Equipotential Surfaces, Potential due to a Point Charge and a Group of Point Charges, Potential due to an Electric

Week 4: Dipole, Potential due to a Charge Distribution, Relation between Electric Field and, Electric Potential Energy.

Week 5: Capacitors and Capacitance, Parallel Plate, Cylindrical and Spherical capacitors, Capacitors in Series and Parallel, Energy Stored in an Electric Field, Dielectrics and Gauss' Law

Week 6: DC Circuits, Electric Current and Current Density, Resistance and Resistivity, Ohm's Law,

Week 7: Power in Electric Circuits, Semiconductors and Superconductors, Work, Energy, and EMF, Resistances in Series and Parallel,

Week 8: Single and Multi-loop Circuits, Kirchhoff's Rules, RC Circuits, Charging and Discharging of a Capacitor.

Week 9: Magnetic Field and Magnetic Force, Crossed Electric and Magnetic Fields and their Applications, Hall Effect,

Week 10: Magnetic Force on a Current Carrying Wire, Torque on a Current Loop, Magnetic

Week 11: Dipole Moment, Magnetic Field Due to a Current, Force between two Parallel Currents, **Week 12:** Ampere's Law, Biot-Savart Law: Magnetic Field due to a Current, Long Straight Wire carrying Current, Solenoids and Toroids,

Week 13: A current-carrying Coil as a Magnetic Dipole, Inductance, Faraday's Law of Induction, Lenz's Law, Induction and Energy Transfers, Induced Electric Fields, Inductors and Inductances, Self-Inductance,

Week 14: RL Circuits, Energy Stored in a Magnetic Field, Energy Density, Mutual Induction.

Week 15: Alternating Fields and Currents: LC Oscillations, Damped Oscillations in an RLC circuit, Alternating Currents, Forced Oscillations, Resistive, Capacitive, and Inductive Loads, **Week 16:** RLC series Circuit, Power in AC Circuits, Transformers, Gauss' Law for Magnetism, Induced Magnetic Fields Displacement Current, Spin & Orbital Magnetic Dipole Moment, Diamagnetism, Paramagnetism, Ferromagnetism, Hysteresis.

Recommended Text Books:

1. D. Halliday, R. Resnick and J. Walker, "Fundamentals of Physics", John Wiley & Sons, 9th ed. 2010.
2. R. A. Serway and J. W. Jewett, "Physics for Scientists and Engineers", Golden Sunburst Series, 8th ed. 2010.
3. R. A. Freedman, H. D. Young, and A. L. Ford (Sears and Zeemansky), "University Physics with Modern Physics", Addison-Wesley-Longman, 13th International ed. 2010

4. F. J Keller, W. E. Gettys and M. J. Skove, "Physics: Classical and Modern, McGraw Hill. 2nd ed. 1992.
5. D. C. Giancoli, "Physics for Scientists and Engineers, with Modern Physics", Addison-Wesley, 4th ed. 2008.

Eligibility for Admission: FA/FSc or equivalent)

Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository writing -1	03	Expository writing -2	03	Expository writing -3	03	Art & Humanities-2	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Art & Humanities-1	03	English-IV Academic Reading & Writing	03
Civilization Course-1	03	Civilization Course-2	03	Introduction to Literary Studies	03	Classic Poetry	03
Natural Science-1	03	Natural Science-2	03	Introduction to Language Studies	03	Semantics	03
Social Science-1	03	Social Science-2	03	Introduction to Phonetics & Phonology	03	Introduction to Morphology	03

Subject Specific Course		
Introduction to Literary Studies	Credit Hours:3(3+0)	Course Code: SSC-1

Course Description

This course introduces literature as cultural and historical phenomena. This entails a study of history of various periods of English Literature from Renaissance to the present. The course also, very briefly, touches upon different theoretical approaches to literature to introduce the student to literary critique and evaluation. A general understanding of literary theory as a broad field of philosophical concepts and principles is also crucial to the understanding of literary piece.

Course Objectives

1. To study the history and practice of English as a scholarly discipline.
2. To study the history and development of each genre through excerpts of literary texts.
3. To do close reading of texts and analyze them with different critical frameworks.
4. To analyze and criticize the works of literature in their cultural and historical contexts.
5. To assess the influence of literary movements in Britain on English literature from all parts of the world.

Course Contents

1. William Henry Hudson. *Introduction to the Study of Literature* (1913)
2. Andrew Sanders. *The Short Oxford History of English Literature* (1994)
3. Mario Klarer. *Introduction to Literary Studies* (1999)
4. J. H. Miller. *On Literature* (2002)

Note: The teacher will use Sander's history with any one of the three books on literature as core texts.

Suggested Readings

- Albert, E. (1979). *History of English Literature* (5th ed.). Oxford, New York: Oxford University Press.
- Alexander, M. (2000). *A History of English Literature*. London: Palgrave Macmillan.
- Blamires, H. (1984). *A Short History of English Literature*. London: Routledge.
- Carter, R., & McRae, J. (1997). *The Routledge History of Literature in English, Britain and Ireland*. London: Routledge.

- Chin, B. A., Wolfe, D., Copeland, J., & Dudzinski, M. A. (2001) *Glencoe Literature: British Literature*. New York: McGraw-Hill Higher Education.
- Compton-Rickett, A. (1912). *A History of English Literature*. London: T. C. and E. C. Jack.
- Daiches, D. (1968). *A Critical History of English Literature*. London: Martin Secker and Warburg Ltd.
- Fletcher, R. H. (1919). *A History of English Literature*. Boston: R. G. Badger.

Subject Specific Course		
Introduction to Language Studies	Credit Hours:3(3+0)	Course Code: SSC-2

Course Description

Language is central to human experience. This course provides a comprehensive overview of language origin, evolution of language as human faculty, and traces the history of English language in order to provide an idea how languages developed. The part on the history of the English language covers story of English language from beginning to the present. The course also includes a brief introduction of the history of linguistics with special reference to various schools of thought that have contributed significantly to the development of Linguistics.

Course Objectives

This course aims to:

- Give students a comprehensive overview of language as human faculty.
- Familiarize students with different stories about the origin of language.
- Provide students an overview of how a language develops through a comprehensive exposure to English language development.
- Enable students to identify major theoretical formulations in the development of linguistics.

Course Contents

1. Language Origin

- Language as a divine gift
- Natural sound source theories
- Social interaction source theories
- The Physical adaptation sources
- The genetic source

2. Speech vs Writing

- Primacy of speech
- Speech vs. Writing
- Origin of writing
- Types of writing systems

3. Language as Human Faculty

- Human Language vs animal communication
- Characteristics of Language: Design features
- Animals lack language: A controversy

4. Language Families

- What is a language family?
- Language Families in the World: A Brief Overview

5. Historical Linguistics

- What is linguistics?
- What is historical linguistics?
- What does historical linguistics study? (phonological, morphological, syntactic, and semantic changes)
- Methods of Language reconstruction

6. Old & Middle English Periods

- Grammatical categories
- Inflections
- Grammatical gender

7. Renaissance

- Old, Middle, and Modern English (grammatical categories)
- Shakespeare

8. 18th Century

- Major characteristics of the age
- Problem of refining and fixing the language
- Swift's proposal
- Johnson's Dictionary
- Grammarians
- Vocabulary formation

- Introduction of passives
- 9. 19th Century
 - Important events and influences
 - Sources of new words
 - Pidgins and Creoles
 - Spelling reforms
 - Development of Dictionary
 - Verb-adverb combination
- 10. English Language in America
 - Americanism
 - Archive Features
 - Difference between the British and American English

Development of Modern Linguistics

- 11. Modern Linguistics
 - Emergence of Modern Linguistics: Saussure
 - Structuralism
 - American Structuralism
 - The Prague School
- 12. Contemporary Approaches to Linguistics
 - Functional Linguistics

Recommended Readings

- Bough, A.C. & Cable, T. (2002). *A History of English Language*. London: Prentice Hall, Inc.
- Campbell, L. (2001), 'The history of linguistics', in M. Aronoff and J.
- Rees-Miller (eds), *The Handbook of Linguistics*. Oxford: Blackwell Publishers, pp. 81-104.
- Joseph, J.E. (2002), *From Whitney to Chomsky: essays in the history of American linguistics*. Amsterdam/Philadelphia: John Benjamins.
- Yule, George. (2006). *The Study of Language*: 4th/ 5th Edition, Cambridge University Press.

Subject Specific Course		
Introduction to Phonetics and Phonology	Credit Hours:3(3+0)	Course Code: SSC-3

Course Description

This course explores speech sounds as physical entities (phonetics) and linguistic units (phonology). In viewing sounds as physical elements, the focus is on articulatory description. In this part of the course, the goal is to learn to produce, transcribe, and describe in articulatory terms many of the sounds known to occur in human languages. In the next part of the course, the focus is on sounds as members of a particular linguistic system.

Course Objectives

This course aims to:

- assist students learn a number of technical terms related to the course
- familiarize students with sounds and sound patterning, particularly in English Language
- develop knowledge of segmental and suprasegmental speech
- help students understand the features of connected speech

Course Contents

1. Basic definitions
 - Phonetics
 - Articulatory, Auditory & Acoustic Phonetics
 - Phonology
 - Phoneme
 - Vowels
 - Consonants
 - Diphthongs
 - Triphthongs
 - Voicing
 - Aspiration
 - Minimal pairs
2. Organs of Speech
3. Phonemes
 - Consonants(place and manner of articulation)
 - Vowels (vowel trapezium/quadrilateral)
 - Monophthongs
 - Diphthongs
 - Triphthongs
4. Rules
 - Rules of Voicing
 - Rules of /r/
 - Rules of /ŋ/
5. Practice of phonemic transcription
6. Definitions
 - Homophones
 - Homographs
 - Homonyms
 - Homophenes
7. Fluency Devices
 - Assimilation
 - Elision
 - Weak forms/Strong forms
 - linking
8. Sound Values

9. Stress and Intonation
10. Practice of phonemic transcription

Recommended Readings

- Collins, B. and Mees, I. (2003) *Practical Phonetics and Phonology: A Resource Book for Students*. London & NY: Routledge (Taylor & Francis)
- Clark, J and Yallop, C. (1995). *An Introduction to Phonetics and Phonology*. 2nd edition. Cambridge, Mass: Blackwell.
- Davenport, Mike & S. J. Hannahs. (2010). *Introducing Phonetics & Phonology*, 3rd edition. Hodder Education
- Roach, Peter. (2009). *English Phonetics and Phonology: A Practical Course*. 4th Edition. Cambridge.

Subject Specific Course		
English-IV Academic Reading & Writing	Credit Hours:3(3+0)	Course Code: SSC-4

Course Description

This course aims at inculcating proficiency in academic writing through research. It guides students to develop a well-argued and well- documented academic paper with a clear thesis statement, critical thinking, argumentation and synthesis of information. This course also teaches students how to use different systems of citations and bibliography. It allows students to become independent and efficient readers armed with appropriate skills and strategies for reading and comprehending texts at undergraduate level.

Course Objectives

To enable the students to:

- Improve literal understanding, interpretation & general assimilation, and integration of knowledge
- Write well organized academic texts including examination answers with topic/thesis statement and supporting details.
- Write argumentative essays and course assignments

Course Contents

Reading and Critical Thinking

1. Read academic texts effectively by:

- Using appropriate strategies for extracting information and salient points according to a given purpose
- Identifying the main points supporting details, conclusions in a text of intermediate level
- Identifying the writer's intent such as cause and effect, reasons, comparison and contrast, and exemplification.
- Interpreting charts and diagrams
- Making appropriate notes using strategies such as mind maps, tables, lists, graphs.
- Reading and carrying out instructions for tasks, assignments and examination questions

2. Enhance academic vocabulary using skills learnt in Compulsory

English I course

- ##### **3. Acquire efficient dictionary skills such as locating guide words, entry words, choosing appropriate definition, and identifying pronunciation through pronunciation key, identifying part of speech, identifying syllable division and stress patterns**

4. Writing Academic Texts:

1. Plan their writing: identify audience, purpose and message(content)
2. Collect information in various forms such as mind maps, tables, charts, lists
3. Order information such as:
 - Chronology for a narrative
 - Stages of a process
 - From general to specific and vice versa
 - From most important to least important
 - Advantages and disadvantages
 - Comparison and contrast
 - Problem solution pattern
5. Write argumentative and descriptive forms of writing using different methods of developing ideas like listing, comparison, and contrast, cause and effect, for and against
 - Write good topic and supporting sentences and effective conclusions.
 - Use appropriate cohesive devices such as reference words and signal markers

6. Redraft checking content, structure and language.
7. Edit and proof read
8. Grammar in Context
 - Phrase, clause and sentence structure
 - Combining sentences
 - Reported Speech

Recommended Readings

- Eastwood, J. (2004). English Practice Grammar (New edition with tests and answers). Karachi: Oxford University Press.
- Fisher, A. (2001). Critical Thinking. C UP
- Goatly, A. (2000). Critical Reading and Writing: An Introductory Course. London: Taylor & Francis
- Hacker, D. (1992). A Writer's Reference. 2nd Ed. Boston: St. Martin's
- Hamp-Lyons, L. & Heasley, B. (1987). Study writing: A course in written English for academic and professional purposes. Cambridge: Cambridge University Press.
- Howe, D. H, Kirkpatrick, T. A., & Kirkpatrick, D. L. (2004). Oxford English for Undergraduates. Karachi: Oxford University Press.
- Murphy, R. (2003?). Grammar in Use. Cambridge: Cambridge University Press.
- Smazler, W. R. (1996). Write to be Read: Reading, Reflection and Writing. Cambridge: Cambridge University Press.
- Wallace, M. (1992). Study Skills. Cambridge: Cambridge University Press.
- Yorky, R. Study Skills.

Subject Specific Course		
Classical Poetry	Credit Hours:3(3+0)	Course Code: SSC-5

Course Description

This course focuses on the study of poetry from Geoffrey Chaucer to Alexander Pope. The term 'classical' understandably refers to the lasting appeal and artistic pleasure of the poetical works selected for this course. Though belonging to different poetical genres, the poetry of Chaucer, Shakespeare, Donne, Milton, and Pope have stood the tests of time and no further study in this genre of literature is possible without studying these bench marks of English poetry. The teachers of classical poetry need to inculcate a spirit of studying the aesthetic concerns of the times of these poetical masterpieces along with giving a holistic understanding of different genres of poetry, namely epic, ballad, sonnet, lyric, and elegy etc. Offering a study of the congenial humor and gentle satire of Chaucer's *Prologue to Canterbury Tales* (c. 1389), the puritanical strain of Milton's epic *Paradise Lost* (1667), the fiery quality of Love and divine poetry of the metaphysical poet John Donne, some sonnets of William Shakespeare and famous mock epic of Alexander Pope, this course is designed to cover the classical aspects of English poetry. By teaching the fundamentals of poetry that this course entails, the teachers may introduce a diversity of poetic expressions that will help the students further their inquiry into this genre in the coming semesters.

Course Objectives

This course aims to:

1. Trace the generic specific historical development of classical poetry, but also to develop a keen awareness of poetic language and tone of the period.
2. Introduce various forms and styles of the genre of poetry for creating an in-depth understanding of this genre.

Course Contents

William Shakespeare (1564-1616)

- Shall I compare thee to a summer's day? (Sonnet 18)
- Let me not to the marriage of true minds (Sonnet 116)

John Donne (1572-1631) Love Poems:

- Song
- The Sun Rising
- Aire and Angels
- The Good Morrow
- Valediction: Forbidding Mourning

Holy Sonnets:

- Thou hast made me, and shall thy work decay?
- Death be not proud, though some have called thee

John Milton (1608-1674)

- *Paradise Lost*. Book I (1667)
- *Paradise Lost* Book 9 (The main contention and critical summary)

Alexander Pope (1688-1744)

- *Rape of the Lock* (1712)

Recommended Readings

- Abbs, P. & Richardson, J. *The Forms of Poetry*. Cambridge: Cambridge UP. 1995.
- Barnet, Sylvan. *A Short Guide to Writing about Literature*(7th Edition). New York: Harper and Collins. 1996.
- Boulton, Marjorie. *The Anatomy of Poetry*. London: Routledge and Kegan Paul. 1977.

- Kamran, Rubina and Syed Farrukh Zad. Ed. *A Quintessence of Classical Poetry*. National University of Modern Languages, Islamabad.
- Kennedy, X. J. Gioia, D. *An Introduction to Poetry*: (8th Edition). New York: Harper Collins College Publishers. 1994.

Subject Specific Course		
Semantics	Credit Hours:3(3+0)	Course Code: SSC-6

Course Description

This course introduces students to the basic concepts of semantics and pragmatics with the aim to help them conceptualize the relationship between words and their meanings, and to understand the factors that govern choice of language in social interaction and the effects of these choices.

Course Objectives

The objectives of the course are to:

- Enable students to differentiate between semantic and pragmatic meaning.
- Introduce the theoretical concepts related to Semantics and Pragmatics.
- Help students internalize sense relation and Lexical relations along with types of meaning.
- Enable students to understand Deixis, Speech Act theory, Cooperative Principle and Politeness.

Course Contents

- Theories of Semantic and Pragmatics
- Types of meaning
- Semantic field
- Sense Relations and Lexical Relations (Hyponymy; Synonymy; Antonymy; Homonymy and Polysemy)
- Syntactic Semantics (Contradiction, Ambiguity, Semantic anomaly, Entailment, Presupposition)
- Speech act theory
- Conversational Implicature
- The Cooperative Principle
- Politeness
- Deixis

Recommended Readings

- Burton-Roberts, N. (Ed.), (2007). *Pragmatics*. Palgrave Macmillan.
- Cruse, A. (2011). *Meaning in Language: An Introduction to Semantics and Pragmatics*. (Third edition). Oxford Textbooks in Linguistics.
- Cutting, J. (2002). *Pragmatics and Discourse: a resource book for students*. Routledge.
- Davis, S. & Gillon, S. B. (2004). *Semantics: A Reader*. Oxford University Press.
- Davis, S. (Ed.), (1991). *Pragmatics: a reader*. Oxford University Press.
- Frawley, W. (2002). *Linguistic Semantics*. Cambridge: Cambridge University Press.
- Griffiths, P. (2006). *An Introduction to English Semantics and Pragmatics*. Edinburgh University Press Ltd.
- Grundy, P. (2000). *Doing Pragmatics*. Arnold.
- Howard, G. (2000). *Semantics: Language Workbooks*. Routledge.
- Hurford, R. J., Heasley, B. & Smith, B. M. (2007). *Semantics: a course book*. (Second edition) Cambridge: CUP.
- Kearns, K. (2000). *Semantics*. Palgrave Modern Linguistics. Great Britain.
- Lyons, J. (1996). *Linguistic Semantics: An Introduction*. Cambridge: University of Cambridge.
- Riemer, N. (2010). *Introducing Semantics*. Cambridge Introductions to Language and Linguistics.
- Saeed, I. J. (2009). *Semantics*. (Third edition). Wiley-Blackwell.
- Horn, R. L., & Ward, L. G. (Eds.), (2005). *The handbook of pragmatics*. Wiley-Blackwell.

Subject Specific Course		
Introduction to Morphology	Credit Hours:3(3+0)	Course Code: SSC-7

Course Description

The key aim of the course is to introduce the students to the basic word structure in Pakistani languages. It engages them to have an understanding of words and parts of words. It will help them to understand word structure in Pakistani languages.

Course Objectives

The objectives of this course are to enable the students to:

- define and describe the terms like morphemes, morphology etc.
- understand basic concepts and principles in morphology
- apply these principles in analyzing word structures in Pakistan languages
- compare word formations in Pakistani languages.

Course Contents

- Introduction to morphology (with examples from Pakistani languages)
 - o free morphemes: roots and stems
 - o bound morphemes: affixes: prefixes, suffixes, infixes, interfixes, circumfixes
 - o morphological productivity: productivity of affixes, prefixes, suffixes, infixes
- Basics of Phonetic Transcription of Words
- Inflectional Morphology
 - o Pluralization, Degree Marking, Verb Forms
- Derivational Morphology
 - o Formation of Nouns, Adjectives, Verbs and Adverbs
 - o Minor processes of derivation: blending, clipping, backformation, acronym, Reduplication
 - o derivation by compounding: endocentric, exocentric and copulative compounds
 - o derivation by modification of base
- Morphology of Pakistani Languages
 - o word forms in Urdu, Punjabi, Sindhi, Pashto and other
 - o Descriptive analysis of word forms in Pakistani languages
- Morpho-Semantics- semantic change in word formation processes
- Morphology Interface with Phonology and Syntax
- Morphology-Syntax Interface

Recommended Readings

1. Aronoff, M. (1994). Morphology by itself. MIT Press, Cambridge.
2. Bauer, L. (2003). Introducing Linguistic Morphology—Edinburgh University Press
3. Booij, G. (2005) The Grammar of Words--An Introduction to Linguistic Morphology
4. David et al. (2009). Urdu Morphology. Oxford University Press, London
5. Mangrio, R. A. (2016). The Morphology of Loan words in Urdu: the Persian, Arabic and English Strands, Cambridge Scholars Publishing, Newcastle upon Tyne.
6. McCarthy, A. C (2002). An Introduction to English Morphology-Words and their Structure, Edinburgh University Press. Edinburgh
7. Plag, I. (2002). Word Formation in English -Cambridge University Press. Cambridge
8. Ayto, J. (1999). *Twentieth Century Words*, Oxford: OUP .
9. Bauer, L. (2001). Morphological Productivity, Cambridge University Press
10. Halpern, A. (1995). On the placement & morphology of clitics. CSLI Publications, Stanford
11. Yu, A. C (2006) A Natural History of Infixation. Oxford University Press, Chicago

12. Zwicky, A. (1985b). 'How to Describe Inflection.' Proceedings of the Berkeley Linguistics Society 11: 372-386. Berkeley, California.
13. Zwicky, A and Pullum, G. (1992). A misconceived approach to morphology. In Proceedings of WCCFL 91, ed. D. Bates. CSLI, Palo Alto, 387-398.

Eligibility for Admission: FA/FSc or equivalent)

Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository Writing -1	03	Expository Writing -2	03	Expository Writing -3	03	Art & Humanities (AH-2)	03
Quantitative Reasoning - 1*	03	Quantitative Reasoning - 2**	03	Art & Humanities (AH-1)	03	SSC-4 Intermediate Microeconomic s	03
Civilization Course-1	03	Civilization Course-2	03	SSC-1 Principles of Microeconomic s	03	SSC-5 Intermediate Microeconomic s	03
Natural Science-1	03	Natural Science-2	03	SSC-2 Principles of Macroeconomi cs	03	SSC-6 Issues in World Economy	03
Social Sciences-1	03	Introduction to Economics (SS-2)	03	SSC-3 Math-II *** (Calculus)	03	SSC-7 Statistics-II****	03

Quantitative Reasoning -1 means Math-I (Algebra)

** Quantitative Reasoning -1 means Statistics-I

*** Since Mats-I and Math-II are prerequisites for Mathematical Economics, hence, Math-II is included as subject specific course.

Subject Specific Course		
Principles of Microeconomics	Credit Hours:3(3+0)	Course Code: SSC-1

**** Since Statistics-I and Statistics -II are prerequisites for Econometrics, hence, Statistics -II is included as subject specific course.

Course description:

Principles of Microeconomics is an introductory undergraduate course that teaches the fundamentals of microeconomics. This course introduces microeconomic concepts, supply and demand analysis, theories of the firm and individual behavior, competition and monopoly. Students will also be introduced to the use of microeconomic applications to address problems in current economic policy throughout the semester. The course will rely heavily on graphical analysis and simple numerical calculations.

Course objectives:

By the end of the course, students will be able to understand introductory microeconomic theory, solve basic microeconomic problems, and use these techniques to think about a number of basic policy questions relevant to the operation of the economy. More specifically, this course aims:

- To develop an understanding of introductory microeconomic theory and its relevance to the real world
- To sharpen the problem solving tactics required to solve basic microeconomic problems
- To give a broader implications of microeconomics principles and their applications
- To train the students to work with others as a part of team to solve problems

Course learning outcomes:

After completing this course, students should have developed a range of skills enabling them to understand economic concepts and use those concepts to analyze specific questions. By the end of this course, students should be able to:

- **UNDERSTAND** consumer and firm behavior
- **APPLY** graphical analysis for a variety of economic situations.
- **CALCULATE** and **INTERPRET** elasticities
- **DEFINE** and **DERIVE** short-run and long-run production costs
- **EXPLAIN** various market structures

TEXT AND REFERENCE BOOKS:

- Michael J. Swann, William A. McEachern *Microeconomics: A Contemporary Introduction*, 3rd edition (or latest available)
- Mankiw N. Gregory, *Principles of Microeconomics* 7th edition (or latest available).
- Campbell R. McConnell, Stanley L. Brue, *Principles of Economics*, 17th edition (or latest available).
- Paul A. Samuelson, William D. Nordhaus, *Economics*, Latest Edition

Subject Specific Course		
Principles of Macroeconomics	Credit Hours:3(3+0)	Course Code: SSC-2

Course Description:

The course is specially designed for the beginners with no formal background or little association with economics. This course is an introduction to the macroeconomic indicators and issues such as national income, unemployment, inflation etc. The course will establish the students understanding on the behavior and performance of the economy as a whole.

Course Objectives:

By the end of the course, students will be able to understand introductory macroeconomic theory and understand the concepts of macro aggregates like National Income, inflation, unemployment and etc. More specifically, this course aims:

- To familiarize the student with the generally accepted principles of macroeconomics.
- To understand the computation of National Income Accounts.
- To Interpret and evaluate media reports on the macro-economy.

Course learning outcomes:

After completing this course, students should have developed a range of skills enabling them to understand basic concepts of macroeconomics. By the end of this course it is expected that the student should be able to:

- **ACQUIRE** the basic knowledge of terminologies used in macroeconomics and the key elements involved in the business decision
- **UNDERSTAND** the meaning and components of the National Income Accounts, especially GDP and GNP;
- **APPLY** three different approaches to **MEASURE** National Income, and the problems associated with calculating, interpreting and comparing National Income statistics
- **UNDERSTAND** the tools, advantages and drawbacks of fiscal policy and monetary policy and how these policies operate.

COURSE CONTENTS	
Week 1	Introduction: <ul style="list-style-type: none">• What is macroeconomics and how economist thinks?• The economy in aggregate,• Complexities of the world of business
Week 2 & 3	<ul style="list-style-type: none">• Scope of macroeconomics,• Brief account of classical and the development of macro-economic after the World War-II,• Concept of business cycles: Boom and Depression,
Week 4 & 5	<ul style="list-style-type: none">• Three concerns of macroeconomics, Inflation, GDP growth and unemployment,• Macroeconomic variables and their mutual relationship• Macro-models as abstraction from the real economy.
Week 6 & 7	National Income Accounting: <ul style="list-style-type: none">• Definition and concept of national income,• Measures of national income: Gross Domestic Product (GDP)

COURSE CONTENTS	
Week 1	Introduction <ul style="list-style-type: none"> • The Economic Problem • Economic Decision Makers • The Circular Flow Model • Distinction Between Microeconomics and Macroeconomics • The Market System
Week 2 & 3	Elasticity of Demand & Supply: <ul style="list-style-type: none"> • Price Elasticity of Demand & Supply • Point Elasticity of Demand & Supply • Arc Elasticity of demand & Supply • Income Elasticity of Demand & Supply • Cross Elasticity of demand & Supply
Week 4 & 5	Consumer Behavior: <ul style="list-style-type: none"> • Utility Analysis (Cardinal Approach), Marginal Utility • Law of Diminishing Marginal Utility and Law of Equi-Marginal Utility, Consumer Equilibrium
Week 6 & 7	<ul style="list-style-type: none"> • Ordinal Approach of Consumer Behavior, Indifference Curves, Features of Indifference Curves, Budget Line, Consumer Equilibrium, Comparison between two approaches
Week 8 & 9	The Theory of production & Theory of Cost: <ul style="list-style-type: none"> • Cost of Production, Short Period and Long Period Analysis • Economies of Scale, Elasticity of Cost, Graphical Representation of Long Run Cost
Week 10 & 11	<ul style="list-style-type: none"> • Production, Factors of Production, Production Function, Short Period Production Relations, Total, Average and Marginal Product, Elasticity of Production • Laws of Returns to Scale • Duality Between Production and Cost of Production
Week 12 & 13	Market Structure: <ul style="list-style-type: none"> • Basics of Perfect Competition, Monopoly, Monopolistic Competition and Oligopoly
Week 14 & 15	<ul style="list-style-type: none"> • Different Possibilities of Short Run firm Equilibrium under Perfect Competition • Profit Maximization in Short-run and long-run under Perfect Competition • Supply Curve of Perfectly Competitive Firm under Short and Long Run
Week 16	<ul style="list-style-type: none"> • Short run and Long run Equilibrium under Monopoly • Monopolistic Competition & Oligopoly
	and Gross National Product (GNP), GDP at factor cost and at market prices, GDP deflator
Week 8 & 9	<ul style="list-style-type: none"> • Computation of national income: Product, Income and Expenditure approaches,
Week 10 & 11	<ul style="list-style-type: none"> • Circular flow of income, • Nominal versus Real income,

Week 12 & 13	<ul style="list-style-type: none">• Per capita income and the standard of living.• Measuring the cost of living: the consumer price index, CPI versus GDP deflator
Week 14 & 15	<ul style="list-style-type: none">• Unemployment and its types• Inflation and its types
Week 16	Components of Aggregate Demand: <ul style="list-style-type: none">• The Concept of Open and closed economy models,• Concept of aggregate markets: Product, Money, Labor and Capital markets,• Components of aggregate demand: Consumption, Investment and Government spending, Income and expenditure identities.• Money and Monetary policy,• Fiscal Policy

TEXT AND REFERENCE BOOKS:

- N. Gregory Mankiw. *Principles of Macroeconomics*, (latest edition)
- Samulson and Nordrons. *Economics*, 18th Edition, (or latest available)
- Parkin, Michael. *Macroeconomics*, Edition Wesley International Inc. (latest edition)

Subject Specific Course		
Statistics	Credit Hours:3(3+0)	Course Code: SSC-3

Course Description

This course deals with statistical concepts, such as data presentation, graphs, measures of central tendency and dispersion, correlation, and index numbers.

Course Objectives

By the end of the course, students will be able to collect, present and analyze the data. More specifically, the course will equip students to:

- Understand techniques of data collection and data presentation
- Analyze data by using statistical techniques
- Communicate the results of statistical work, and more specifically write up the results of statistical analysis in a report consisting of a non-technical abstract for decision makers, so that they can improve their decisions.

Course Learning Outcomes:

Upon successful completion of the course, the student will:

1. UNDERSTAND and be able to CALCULATE basic statistical concepts(tabular and graphic representation of data, measures of central tendency, dispersion and asymmetry, correlation)
2. APPLY knowledge to SOLVE simple tasks using computer software, such as MS Excel, SPSS.
3. based on the acquired knowledge to INTERPRET the meaning of the calculated statistical results

COURSE CONTENTS	
Week 1	Statistics and Statistical Thinking <ul style="list-style-type: none">• The Science of Statistics and its importance• Fundamental Elements of Statistics• The Role of Statistics in Critical Thinking and Ethics
Week 2 & 3	Organizing Data <ul style="list-style-type: none">• Types of Variables Measurement Scales (nominal, ordinal, interval and ratio scale)• Data Collection Methods• Presentation of data through classification, tabulation, diagrams and graphs
Week 4 & 5	Descriptive Measures <ul style="list-style-type: none">• Measures of Location: Mean, Median, Mode, Geometric Mean, Quartiles, Deciles & Percentiles• Measures of Dispersion; Range, Mean Absolute Deviation, Standard Deviation, Coefficient of Variation, Boxplots
Week 6 & 7	Index Numbers <ul style="list-style-type: none">• Defining an Index Number• Un-weighted Aggregates Index

	<ul style="list-style-type: none">• Weighted Aggregates Index• Average of Relative Methods• Quantity and Value Indices
Week 8 & 9	<i>Time Series Analysis:</i> <ul style="list-style-type: none">• Introduction• Components of Time Series• Deseasonalization of Data
Week 10 & 11	<i>Probability</i> <ul style="list-style-type: none">• Probability• Rules of Probability
Week 12 & 13	<ul style="list-style-type: none">• Bayes Theorem <i>Random Variable and Discrete Distributions</i> <ul style="list-style-type: none">• Discrete Random Variables
Week 14 & 15	<ul style="list-style-type: none">• Mean and Standard Deviation of a Discrete Random Variable• The Binomial, Poisson and other discrete distributions
Week 16	<i>The Normal Distribution</i> <ul style="list-style-type: none">• Central Limit Theorem• Introducing Normally Distributed Variables• Areas under the Standard Normal Curve• Working with Normally Distributed Variables• Assessing Normality; Normal Probability Plots

TEXT AND REFERENCE BOOKS:

- Anderson, Sweeney and Williams, *Statistics for Business and Economics*, South-Western, Cengage Learning. (latest edition)
- Weiss, N. A. *Elementary Statistics*, Pearson. (latest edition)
- McClave, J. and Sincich, T. *Statistics* Pearson. (latest edition)
- Lind, D. A. *Statistical Techniques in Business and Economics*, The McGraw- Hill Companies (latest edition)
- Gerald, K. *Statistics for Management and Economics*, Pearson. (latest edition)

Subject Specific Course		
Intermediate Microeconomics	Credit Hours:3(3+0)	Course Code: SSC-4

Course Description:

Intermediate Microeconomics is the second course of Microeconomics in the BS (Economics) program that builds up an extended knowledge of microeconomic concepts, principles and theories. This course mainly focuses on the conceptual foundations of microeconomics: prices, markets, optimization, equilibrium, and comparative statics. The course presents a logical and analytical framework for the observed economic phenomena. The course includes the study of consumer theory, theory of demand, producer theory, perfect competition, imperfect competition, externalities, public goods, and government interventions. Basic algebra and calculus, along with graphical techniques, will be used to analyse these microeconomic concepts.

Course Objectives:

The objective of the course is to extend the knowledge of the basic microeconomic principles that will provide the foundation for future studies in economics.

1. The course is aimed to develop the economic way of thinking to tackle the issues like resource allocation of consumers and producers.
2. The course is aimed to give an insight into how economic models can help us think about important real world phenomena, like reasons behind the rise and fall of prices and wages, how firms earn profits and why they go out of business.
3. The course is aimed to analyze the role of decision making agents in the economy and their impact on input and output prices and resource allocation.
4. The course is aimed to analyze critically the role of free markets, the possible reasons behind market failure and the effects of government intervention in the market.
5. The course is aimed to obtain basic knowledge of the issues that may arise when market information is asymmetric.

Course Learning Outcomes:

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

- **ACQUIRE** proficiency to employ numerical and graphical techniques as well as verbal presentation of microeconomic concepts.
- **UNDERSTAND** the concepts microeconomic theories and models in terms of their policy implications, advantages and limitations.
- **EXPLAINS** consumers', firms', and market behaviour using mathematical tools and diagrams the problems.
- **DEMONSTRATE AND APPLY** microeconomic models to design solutions to practical economic issues and real-world scenarios.

COURSE CONTENTS	
Week 1	Introduction <ul style="list-style-type: none">• Analyzing Economic Problems• Constructing Economic Models• Optimization Principle

COURSE CONTENTS	
Week 2 & 3	Consumer Theory <ul style="list-style-type: none">• Budget Constraint and its Application• Utility and Preferences• Indifference Curve Analysis• Optimal Choice of Consumer• Application of Consumer Theory in choosing Taxes
Week 4 & 5	<ul style="list-style-type: none">• Income Effect• Substitution Effect• Price Effect as a combination of Income and Substitution Effect• Decomposition of Price Effect into income & substitution effects (all approaches)• Marshallian and Hicksian Demand Curves (normal, inferior and Giffen goods)
Week 6 & 7	Theory of Demand and Supply <ul style="list-style-type: none">• Income Consumption Curve and Engel Curves• The Price Consumption Curve and the Demand Curve• Derivation of Demand Curve• Demand Function• Supply Function• Supply and Demand Equilibria• Comparative Statics• The Inverse Demand Function
Week 8 & 9	Producer Theory <ul style="list-style-type: none">• Producer's Objective• Technology Constraints• Short Run and Long Run Production Function and Cost• Diminishing Marginal Product
Week 10 & 11	<ul style="list-style-type: none">• Diminishing Technical Rate of Substitution• Returns to Scale and Cost Function• Isoquant and Isocost Analysis• Cost Minimization in Short and Long run• Short-Run and Long run Profit Maximization
Week 12 & 13	Markets Analysis <ul style="list-style-type: none">• Perfectly Competitive Markets: Analysis and Application<ul style="list-style-type: none">○ Short Period Analysis (equilibrium cases, supply curve of firm)○ Long Period Analysis (equilibrium of firm, supply curve of industry)
Week 14 & 15	<ul style="list-style-type: none">• Monopoly Markets: Analysis and Application<ul style="list-style-type: none">○ Short Period Analysis (equilibrium cases, why no supply curve of firm)○ Long Period Analysis (equilibrium of firm, sub-optimum, optimum and super-optimum cases)○ Price Discrimination (concept, need, possibility, forms and degrees of price discrimination)

COURSE CONTENTS	
Week 16	<ul style="list-style-type: none">• Monopolistic Competition: Analysis and Application<ul style="list-style-type: none">○ Short Period Analysis (equilibrium cases)○ Long Period Analysis (equilibrium of firm)• Oligopoly: Analysis and Application<ul style="list-style-type: none">○ Cournot Model○ Bertrand Model○ Stackelberg Model○ Sweezy's Kinked Demand Model

TEXT AND REFERENCE BOOKS:

- Hal R. Varian, *Intermediate Microeconomics*, 9th Edition, 2014, W.W. Norton & Company, ISBN-13: 9780393123968
- Walter Nicholson and Christopher M. Snyder, *Intermediate Microeconomics and Its Application*, 11th Edition, Thomson South-Western, ISBN- 13: 9781133189022
- Robert S. Pindyck and Daniel L. Rubinfeld, *Microeconomics*, Prentice Hall, Fifth Edition, ISBN: 0130165832

Subject Specific Course		
Intermediate Macroeconomics	Credit Hours:3(3+0)	Course Code: SSC-5

Course Description:

The course is designed to teach the basic concepts and terms used in Macroeconomics. It will help the students to understand how the economies behave keeping in view the National Income, inflation, unemployment and macroeconomic fluctuations in the long run and short run. It will discuss Aggregate Demand and Aggregate Supply. The course will help students to think like economists.

Course Objectives:

1. To understand concept of National income what is it and how it works, causes and effects of inflation and unemployment,
2. To learn how to critically analyze the economic fluctuation including short run and long run shocks in the economy
3. To be able to analyze and relate the facts and figures (numbers) with theory to support and strengthen the research and critical analysis.

Course Learning Outcomes:

By the end of this course it is expected that the students will be able to

- ACQUIRE the knowledge about the monetary system, inflation and unemployment
- UNDERSTAND the concept of market Equilibrium keeping in view the demand and supply of goods and services
- INTERPRET and ANALYZE the data, graphs and trends in the macroeconomic indicators
- UNDERSTAND the concepts of Economic Fluctuations in the goods and money market in the light of IS and LM curves
- DEMONSTRATE macroeconomic concepts by using appropriate terms and explaining them with country specific examples
- APPLY macroeconomic theories and models to address the Macroeconomic issues

Course Contents	
Week 1	Introduction to Macroeconomics
Week 2 & 3	National Income: Where it Comes from and Where it Goes <ul style="list-style-type: none">• What determines the Total Production of Goods and Services?• How Is National Income Distributed to the Factors of Production?• What Determines the Demand for Goods and Services?• Equilibrium in the Market for Goods and Services
Week 4 & 5	Money, Prices and Unemployment The Monetary System: What it is and How it Works? <ul style="list-style-type: none">• What Is Money, its types and role• How the Quantity of Money is Controlled and measured
Week 6 & 7	Inflation: It Causes, Effects, and Social Costs <ul style="list-style-type: none">• The Quantity Theory of Money• Seigniorage: The Revenue From Printing Money• Inflation and Interest Rates• The Nominal Interest Rate and the Demand for Money

	<ul style="list-style-type: none">• The Social Costs of Inflation• Hyperinflation
Week 8 & 9	Unemployment <ul style="list-style-type: none">• Job Loss, Job Finding, and the Natural Rate of Unemployment• Job Search and Frictional Unemployment• Real-Wage Rigidity and Structural Unemployment• Labor-Market Experience: The United States• Labor-Market Experience: Europe
Week 10 & 11	The Economy in The Short Run: Economic Fluctuations Introduction to Economic Fluctuations <ul style="list-style-type: none">• The Facts About the Business Cycle• How the Short Run and Long Run Differ• The Model of Aggregate Supply and Aggregate Demand• Aggregate Demand: The Quantity Equation, Slope and Shifts in the Aggregate Demand Curve• Aggregate Supply curve in the Long Run and Short Run• Stabilization Policy : Shocks to Aggregate Demand and Aggregate Supply
Week 12 & 13	Aggregate Demand I: Building the IS-LM Model <ul style="list-style-type: none">• The Goods Market and the IS Curve• The Money Market and the LM Curve• The Short-Run Equilibrium
Week 14 & 15	Aggregate Demand II: Applying the IS-LM Model <ul style="list-style-type: none">• Explaining Fluctuations with the IS–LM Model• IS–LM as a Theory of Aggregate Demand• The Great Depression
Week 16	Aggregate Supply & the Short run Tradeoff between Inflation & Unemployment <ul style="list-style-type: none">• The Basic Theory of Aggregate Supply• Inflation, Unemployment, and the Phillips Curve

TEXT AND REFERENCE BOOKS:

- Mankiw, N. Gregory. *Macroeconomics*. 8th Edition, Worth Publishers.
- Abel, Andrew, B., Bernanke, Ben S. & Croushore, D. *Macroeconomics*, Seventh Edition. Addison-Wesley.
- Williamson, Stephen D. *Macroeconomics*, 4th Edition, Prentice Hall.

Subject Specific Course		
Statistics-II	Credit Hours:3(3+0)	Course Code: SSC-6

Course Description

This course deals with inferential statistical. Therefore, focus will be on the techniques by which decisions about a statistical population are made on the basis of sample data. It will cover topics related to sampling, estimation, testing of hypothesis and statistical inference.

Course Objectives:

By the end of the course, students will be able

- To draw conclusions about population based on sample data,
- Understand techniques of sampling, estimation, hypotheses testing, experimental design
- Analyze the techniques of statistical inference.

Course Learning Outcomes:

Upon successful completion of the course, the student will:

- UNDERSTAND the purpose and techniques of sampling
- APPLY the techniques of Statistical Inference
- INTERPRET the meaning of the calculated statistical results

Course Contents	
Week 1	Sampling and Sampling Distributions <ul style="list-style-type: none">• Sampling techniques; random, cluster, systematic, convenience, judgment and stratified• Simple random sampling• Point estimation• Introduction to sampling distributions• Properties of point estimators
Week 2 & 3	Interval Estimation <ul style="list-style-type: none">• Population with known Standard Deviation• Population mean with unknown Standard Deviation• Determining the sample size• Population proportion
Week 4 & 5	Hypothesis Testing <ul style="list-style-type: none">• Developing null and alternative hypothesis• Type I and type II error• Population mean with known Standard Deviation• Population mean with unknown Standard Deviation
Week 6 & 7	<ul style="list-style-type: none">• Population Proportion• Hypothesis testing and decision making• Calculating probabilities of Type-II error• Determining the sample size for hypothesis testing about a population mean
Week 8 & 9	Statistical Inference About Mean and Proportions with Two Populations <ul style="list-style-type: none">• Inference about the difference between two population means with known and unknown values of Standard Deviations

	<ul style="list-style-type: none">• Inference about the difference between two population means: matched samples
Week 10 & 11	Inferences About Population Variances <ul style="list-style-type: none">• Inferences about a population variance• Inference about two population variances
Week 12 & 13	Tests of Goodness of Fit and Independence <ul style="list-style-type: none">• Goodness of Fit: A multinomial population• Tests of independence• Goodness of fit tests
Week 14 & 15	Analysis of Variance and Experimental designs <ul style="list-style-type: none">• An introduction to analysis of variance• Analysis of variance: testing for the equality of k population means• Multiple comparison procedures• An introduction to experimental design• Randomized block design• Factorial experiments
Week 16	Nonparametric Methods <ul style="list-style-type: none">• Sign test Wilcoxon test• Mann-Whitney-Wilcoxon test, Kruskal-Wallis test , Rank correlation

TEXT AND REFERENCE BOOKS

- Anderson, Sweeney and Williams, *Statistics for Business and Economics*, Cengage Learning.
- Wonnacott, T.H. and Wonnacott, R. J., *Introductory Statistics*, John Wiley & Sons, New York.

Subject Specific Course		
Issues in World Economy	Credit Hours:3(3+0)	Course Code: SSC-7

Course Description:

This course offers a comprehensive analysis of various issues of global economy within the field of International Economics. It investigates the phenomenon of global economy and seeks to provide understanding of today's increasingly interdependent world. This course recognizes that economy cannot be treated separately from other domains of social studies so such topics as political economic theories and models, historical context, cultural phenomenon, role of information and communication technologies, and others will be discussed.

Course Objectives:

The basic objective of this course is to focus on major global economic issues that characterize the state of our current world. This course aims to give students a deep and a comprehensive understanding of what global economy is and how to manage domestic economy in the context of a dynamic global economy. This course introduces and critically examines the processes involving the increasing interconnection of the world and its effects on people's lives. The course provides an interdisciplinary perspective on major concepts in order to make sense of the changes taking place at a global scale. It also explores existing debates and case studies in order to illustrate the ongoing challenges that communities face.

Course Learning Outcomes:

Upon successful completion of the course, the student will:

- LEARN fundamentals regarding the dynamics of the global economy. They will explore characteristics of capitalist and socialist economies; examine new trends in global economy.
- Be AWARE OF data relating to global economic performance and will be able to interpret what they show.
- Have good KNOWLEDGE of the evolution of the world's monetary and trading systems.
- Be able to apply this theory to investigate and better understand contemporary world economic issues.

Course Contents	
Week 1	Economic Geography: An Introduction The Historical Development of Capitalism
Week 2 & 3	Population Resources and Environment
Week 4 & 5	Theoretical Considerations Agriculture
Week 6 & 7	Manufacturing Services
Week 8 & 9	Transportation and Communications Cities and Urban Economies
Week 10 & 11	Consumption
Week 12 & 13	International Trade and Investment
Week 14 & 15	International Trade Patterns
Week 16	Development and Underdevelopment in the Developing World

TEXT AND REFERENCE BOOKS

- Stutz, F. P., & De Souza, A. R. (1998). *The world economy: Resources, location,*

trade, and development. Prentice Hall.

- Stiglitz, J. E. (2002). *Globalization and its Discontents.* New York.
- Dicken, P. (2007). *Global shift: Mapping the changing contours of the world economy.* SAGE Publications Ltd.
- Rosser, J. B., & Rosser, M. V. (2018). *Comparative economics in a transforming world economy.* MIT Press.
- Freidman, T. (2005). *The world is flat.* New York: Farrar, Straus and Giroux.
- Bhagwati, J. (2007). *In defense of globalization: With a new afterword.* Oxford University Press.
- Stiglitz, J. E. (2008). *Making Globalization Work.* WW Norton & Company.

Subject Specific Course		
Mathematics-I	Credit Hours:3(3+0)	Course Code: SSC-6

Course Objectives

To prepare the students, with the essential tools of algebra to apply the concepts and the techniques in their respective disciplines.

Course Learning Outcomes

At the end of the semester the students will be familiar with the essential tools of algebra and other mathematical tools that will help them in their future assignments.

COURSE CONTENTS	
Week 1	Preliminaries Real-number system, complex numbers
Week 2 & 3	Introduction to sets, set operations Functions, types of functions
Week 4 & 5	Matrices: Introduction to matrices, types, matrix inverse Determinants, system of linear equations, Cramer's rule
Week 6 & 7	Quadratic Equations: Solution of quadratic equations Qualitative analysis of roots of a quadratic equations
Week 8 & 9	Equations reducible to quadratic equations, cube roots of unity Relation between roots and coefficients of quadratic equations
Week 10 & 11	Sequences and Series: Arithmetic progression, geometric progression Harmonic progression. Binomial Theorem
Week 12 & 13	Introduction to mathematical induction Binomial theorem with rational and irrational indices
Week 14 & 15	Trigonometry Fundamentals of trigonometry
Week 16	Trigonometric identities

TEXT AND REFERENCE BOOKS:

- Dolciani MP, Wooton W, Beckenback EF, Sharron S, Algebra 2 and Trigonometry, 1978, Houghton & Mifflin.
- Boston (suggested text).
- Kaufmann JE, College Algebra and Trigonometry, 1987, PWS-Kent Company, Boston.
- Swokowski EW, Fundamentals of Algebra and Trigonometry (6th edition), 1986, PWS-Kent Company, Boston.

Subject Specific Course		
Mathematics-II	Credit Hours:3(3+0)	Course Code: SSC-6

Course Description:

This course is the second part of a compulsory two-course sequence. This part is to be taught in Semester II following the first part in Semester I. The first course covered single variable functions and optimization and this course covers the essentials of linear algebra and optimization techniques required for the analysis of functions of several variables that are commonly used in economics.

Course Objectives:

Objectives of the course are:

1. To transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level.
2. To applying mathematical techniques to economic theory in general.
3. To be able to apply mathematical strategies in applied contexts.
4. To learned mathematical concepts and skills relevant to Economics.

Course Learning Outcomes:

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

- **ACQUIRE** the basic knowledge some more advanced areas of mathematics from among probability, real analysis, abstract algebra, complex analysis, partial differential equations, and discrete mathematics.
- **UNDERSTAND** calculus, basic discrete mathematics, and linear algebra.
- **SOLVE** and apply mathematical methods in applied contexts.
- **EVALUATE** differential equations, Linear algebra, Functions of several real variables and Multi-variable optimization
- **DEMONSTRATE** algebraic facility with algebraic topics including linear, quadratic, exponential, logarithmic, and trigonometric functions

Course Contents	
Week 1	Differential equations: <ul style="list-style-type: none">• First-order differential equations;• Integral curve, direction diagram and slope field; qualitative theory and stability.
Week 2 & 3	<ul style="list-style-type: none">• Integral curve, direction diagram and slope field; qualitative theory and stability.
Week 4 & 5	Linear algebra: <ul style="list-style-type: none">• Vector spaces: algebraic and geometric properties,• Scalar products, norms, orthogonality; linear transformations: properties,
Week 6 & 7	<ul style="list-style-type: none">• Matrix representations and elementary operations;
Week 8 & 9	<ul style="list-style-type: none">• Systems of linear equations: properties of their solution sets;• Determinants: characterization, properties and applications.
Week 10 & 11	Functions of several real variables: <ul style="list-style-type: none">• Geometric representations: graphs and level curves;• Differentiable functions: characterizations, properties with respect to various operations and applications;• Second order derivatives: properties and applications;

Week 12 & 13	<ul style="list-style-type: none"> The implicit function theorem, and application to comparative statics problems; Homogeneous and homothetic functions: characterizations and applications.
Week 14 & 15	Multi-variable optimization: <ul style="list-style-type: none"> Convex sets; geometric properties of functions: Convex functions, their characterizations, properties and applications; further geometric properties of functions: Quasi convex functions, their characterizations, properties and applications;
Week 16	<ul style="list-style-type: none"> Unconstrained optimization: geometric characterizations, characterizations using calculus and applications; Constrained optimization with equality constraints: geometric characterizations, Lagrange characterization using calculus and applications; properties of value function: envelope theorem and applications.

TEXT AND REFERENCE BOOKS:

- K. Sydsaeter and P. Hammond, *Mathematics for Economic Analysis*, Pearson Educational Asia, Delhi, 2002.
- A. C. Chiang, *Fundamental Methods of Mathematical Economics*, N. Y, McGraw-Hill Co, Latest edition.

Eligibility for Admission: FA/FSc or equivalent)

Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository writing -1	03	Expository writing -2	03	Expository writing -3	03	Art & Humanities-2	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Art & Humanities-1	03	Introduction to Political Science-III	03
Civilization Course-1	03	Civilization Course-2	03	Introduction to Political Science-II	03	Political Systems (Developing)	03
Natural Science-1	03	Natural Science-2	03	Political Systems (Developed)	04	Introduction to IR	03
Social Science-1	03	Introduction to Political Science-I (SS-2)	03	Pakistan Movement	03	Western Political Philosophy-I	03

Social Science Course		
Introduction to Political Science-I	Credit Hours:3(3+0)	Course Code: SS-2

Objectives: The objective of this course is to introduce the students with the fundamentals of the subject of Political Science and prepare them for advanced studies in the forthcoming semesters. The very basic concepts and terminology commonly used in the further courses of studies are taught to make the students friendly with the subject.

Course Contents:

1. Definition, Nature, Scope and Sub-fields of Political Science.
2. Relationship of Political Science with other social sciences.
3. Approaches to the study of Political Science: Traditional and behavioral approach.
4. State: its origin and evolution; Western and Islamic concepts of State,
5. Nation and Sovereignty.
6. Basic concepts of Political Science: Power, Authority, Legitimacy
7. Organs of Government: Legislature, Executive, Judiciary. Note: Sub-fields of Political Science include: Political Philosophy/Theory; Comparative Politics; International Relations; Public Administration/ Public Policy; Local Government, etc.

Recommended Books:

1. Ahmad Sheikh Bashir, Riyasat Jo Ilm (Sindhi meaning Science of State), Jamshoro, Institute of Sindhalogy, University of Sindh, 1985.
2. Haq, Mazher ul, Theory and Practice in Political Science, Lahore Bookland, 1996.
3. Ian Mackenzi (Ed.), Political Concepts: A Reader and Guide, Edinburgh, University Press, 2005.
4. Mohammad Sarwar, Introduction to Political Science, Lahore Ilmi Kutub Khana, 1996. 6
5. R. C. Agarwal, Political Theory (Principles of Pol. Science), New Delhi, S. Chand & Co., 2006.
6. Robert Jackson and Dorreen Jackson, A Comparative Introduction to Political Science, New Jersey, Prentice – Hall, 1997
7. Rodee Anderson etc. Introduction to Political Science, Islamabad, National Book Foundation, Latest Edition.
8. Roskin, Michael G., Political Science: An Introduction, London: Prentice Hall, 1997.
9. Shafi, Choudhry Ahmad, Usul-e-Siyasiat (Urdu), Lahore Standard Book Depot, 1996.
10. V. D. Mahajan, Political Theory- Principles of Pol. Science, New Delhi, S. Chand & Co., 2006.

Subject Specific Course		
Introduction to Political Science-II	Credit Hours:3(3+0)	Course Code: SSC-1

Objectives:

This course is the continuation of Political Science-I. It mainly emphasizes on the functional aspects of the politics in a society. The students are to be enabled to understand the various forms of state and government, functioning of the political system and study its various components and actors influencing this functioning.

Course Contents:

1. Forms of State: Unitary, Federation, Confederation.
2. Forms of Government: democracy, Authoritarian Parliamentary, Presidential
3. Political System: Definition, Characteristics and Functions
4. Constitution: Definition, sources, kinds and amendments.
5. Law: Definition, Sources, kinds; rule of law, its relationship with Morality, individual Liberty and Rights & Duties.

Recommended Books:

1. Choudhry Ahmad Shafi, Usul-e-Siyasiat (Urdu), Lahore Standard Book Depot, 1996.
2. Ian Mackenzi (Ed.), Political Concepts: A Reader and Guide, Edinburgh, University Press, 2005.
3. Mazher ul Haq, Theory and Practice in Political Science, Lahore Bookland, 1996.
4. Michael G. Roskin, Political Science: An Introduction, London: Prentice Hall, 1997.
5. Mohammad Sarwar, Introduction to Political Science, Lahore Ilmi Kutub Khana, 1996. 7
6. R. C. Agarwal, Political Theory (Principles of Pol. Science), New Delhi, S. Chand & Co., 2006.
7. Robert Jackson and Doreen Jackson, A Comparative Introduction to Political Science (New Jersey, Prentice 8.– Hall, 1997)
9. Rodee Anderson etc. Introduction to Political Science, Islamabad, National Book Foundation, Latest Edition.
10. Sheikh Bashir Ahmad, Riyasat Jo Ilm (Sindhi meaning Science of State), Jamshoro, Institute of Sindhalogy, University of Sindh, 1985.
11. V. D. Mahajan, Political Theory (Principles of Pol. Science), New Delhi, S. Chand & Co., 2006. Semester-II INTRODUCTION TO POLITICAL SCIENCE-III 03 Cr. Hrs.

Subject Specific Course		
Political Systems (Developed) UK & USA	Credit Hours:3(3+0)	Course Code: SSC-3

Objectives:

The course is designed to give an understanding to the students about the functioning of the developed political systems and their structure. In this course efforts are made to cover the various aspects of Political Systems of UK and USA. The purpose of this course is to generate awareness among the students about the actual functioning of these political systems. This study will enable them to compare any other political system and find out the reasons of its malfunctioning and solution of various problems faced in it.

Course Contents:

Following aspects of the political systems of UK and USA shall be studied.

1. Historical background and development;
2. Constitutional/legal foundations of the system;
3. Political process and political recruitment;
 - a. Political parties and pressure groups
 - b. Functioning of the organs of the government: legislature, executive and judiciary
 - c. Political environmental factors influencing the politics such as geographic, socio-economic, international scenario, media etc.
4. Political culture

Recommended Books:

1. F. N Forman and N. D.J Baldwin, *British Politics*, London: MacMillan, 1991.
2. G.Q. Wilson, *American Government: Institutions and Politics*, 3rd edition, Heath & Co., n.d.
3. Harold J. Laski, *Parliamentary Government in England*, London, Allen & Unwin, 1960.
4. J. M. Colomer, *Political Institutions in Europe*, London, 1996.
5. M. Carter Gwendolen and John H. Hertz, *Major Foreign Powers*, New York: Harcourt, Brace & World, INC, 1967.
6. P.G Cocker, *Contemporary British Politics and Government*, Kent, Tudor Business Publishing Ltd., 1993.
7. Pomper McWilliams Baker, *American Government*, McMillan Publishing Co. London, 1993.
8. Ramsay Muir, *How Britain is Governed*, London, Constable & Co., 1940.
9. Robert G. Neumann, *European Government*, New York: McGraw-Hill, INC, 1968.
10. Thomas E. Patterson, *The American Democracy*, Boston, McGraw Hill College, 1999.

Subject Specific Course		
Pakistan Movement	Credit Hours:3(3+0)	Course Code: SSC-3

Objectives:

The course is designed to generate awareness among the students regarding genesis of Pakistan, constitutional and political evolution in the Indo-Pak sub-. It will enable the students to determine the real objectives of the struggle of Indian Muslims in the first half of 20th century.

Course Contents:

1. Establishment of British Raj and its impact on Indian Muslims;
2. Revivalism of Hindu nationalism
3. Gradual involvement of the Muslims in Indian political processes and the role played by eminent Muslim leaders
4. Evolution of the Concept of Separate Nation in Muslims of Sub- continent
5. Politics of All Indian National Congress and Muslim grievances;
6. All India Muslim League: Objectives and priorities
7. Initiatives towards the establishment of responsible government (1914-1935);
8. The second world war and its impact on Pakistan Movement;
9. The Interim government and transfer of power.

Recommended Books:

1. Abdul Waheed Khan, *India Wins Freedom: The Other Side*, Karachi, 1961
2. Abul Kalam Azad, *India Wins Freedom*, Islamabad, National Book Foundation, 2007.
3. C. Rahmat Ali, *Pakistan*, London, Athlone Press, 1947.
4. Chaudhari Muhammad Ali, *The Emergence of Pakistan*, Research Society of Pakistan, Punjab University, Lahore, 1983
5. Ian Talbot, *Pakistan: A Modern History*, Lahore, Vanguard, 1999.
6. Ishtiaq Hussain Qureshi, *The Struggle for Pakistan*, Karachi, Karachi University Press, 1997.
7. Keith Callard, *Pakistan: A Political Study*, Karachi, Oxford University Press, 1968.
8. S.A. Rehman *Why Pakistan*
9. Safdar Mahmood, *Constitutional Foundation of Pakistan*, Lahore, Jang Publishers, 1990.
10. Stephen P. Cohen, *The Idea of Pakistan*, Lahore, Vanguard, Books.

Subject Specific Course		
Introduction to Political Science-III	Credit Hours:3(3+0)	Course Code: SSC-4

Objectives:

This course is the continuation of Political Science-II. It mainly focuses on the conceptual framework of political parties and pressure groups and their role in shaping and reshaping of public opinion. Along with this, the emphasis is also on the process of election and kinds of representation. The students are to be enabled to understand the philosophical discourses of different political ideologies, and emerging trends in politics.

Course Contents:

1. Political Parties: Kinds, Structures, Functions,
2. Interest Groups: Kinds, Functions, Relationship with Political Parties.
3. Public Opinion: Definition, Formulation, Assessment.
4. Electoral Process: Mechanism, Kinds of representation, requirements of impartial elections.
5. Political Ideologies: Liberalism, Fascism, Nazism, Socialism, Marxism, Nationalism.
6. National Integration
7. Emerging political concepts and terminologies: globalization, governance, feminism, terrorism, political exclusion and inclusion, power sharing.

Recommended Books:

1. Choudhry Ahmad Shafi, *Usul-e-Siyasiat* (Urdu), Lahore Standard Book Depot, 1996.
2. Ian Mackenzi (Ed.), *Political Concepts: A Reader and Guide*, Edinburgh, University Press, 2005.
3. Mazher ul Haq, *Theory and Practice in Political Science*, Lahore Bookland, 1996.
4. Michael G. Roskin, *Political Science: An Introduction*, London: Prentice Hall, 1997.
5. Mohammad Sarwar, *Introduction to Political Science*, Lahore Ilmi Kutub Khana, 1996.
6. R.C. Agarwal, *Political Theory (Principles of Pol. Science)*, New Delhi, S. Chand & Co., 2006.
7. Robert Jackson and Dorreen Jackson, *A Comparative Introduction to Political Science* (New Jersey, Prentice – Hall, 1997)
8. Rodee Anderson etc. *Introduction to Political Science*, Islamabad, National Book Foundation, Latest Edition.
9. Sheikh Bashir Ahmad, *Riyasat Jo Ilm* (Sindhi meaning Science of State), Jamshoro, *Institute of Sindhalogy*, University of Sindh, 1985.
10. V. D. Mahajan, *Political Theory (Principles of Pol. Science)*, New Delhi, S. Chand & Co., 2006.

Subject Specific Course		
Political Systems (Developing) China, India & Turkey	Credit Hours:3(3+0)	Course Code: SSC-5

Objectives:

This course is designed to enable the students for a comparative study of the political systems of China, India and Turkey. This study will not only provide the students with basic knowledge about the actual functioning of these political systems, but also enable them to make a meaningful comparison among any of the countries and find out the reasons of malfunctioning, if any.

Course Contents:

Following aspects of the political systems of the Countries under reference shall be studied:

1. Historical background and development;
2. Constitutional/legal foundations of the system;
3. Political process:
 - a. Political parties and pressure groups;
 - b. Functioning of the organs of the government: legislature, executive and judiciary
 - c. Political environmental factors influencing the Politics such as geographic, socio-economic, international scenario, media etc.
4. Political culture: Salient features, public participation, ideological orientations, nature of civil-military relations.

Recommended Books:

1. Durga Das Basu, *Introduction to the Constitution of India*, New Delhi, Prentice-Hall, 11th edition, 1985.
2. Ergun Ozbudun, *Contemporary Turkish Politics: Challenges to Democratic Consolidation*, Lynner: Lienner 2000.
3. Iqbal Ahmad (Ed.) *The Islamic Revolution in Iran*, Lahore, 1980.
4. June Teufel Dreyer, *China's Political System: Modernization and Tradition*, Longman, 08-Feb-2011.
5. Kerry Dumbaugh, *Understanding China's Political System* Diane Publishing, 2010.
6. M.P Singh & Himanshu Roy Singh, *Indian Political System* Manak Publishers, 2005.
7. Rai Shakeel Akhtar, *Turkey: In New World Perspective: A cultural-Historical Analysis*, Sang-e-Meel Publications Lahore, 1995.
8. Robert L. Hardgrave, *India: Government and Politics in a Developing Nation*, New York: Harcourt, Brace & World, 1970.
9. William A. Joseph, *Politics in China: An Introduction*, Oxford University Press, 2010.

Subject Specific Course		
Introduction to International Relations	Credit Hours:3(3+0)	Course Code: SSC-6

Objectives:

The course is designed to focus on the dynamics of International Relations, national interests, power factor and state behavior as a guide to understand the nature of real politick. The course will enable the students to analyze the basic approaches and fundamental concepts of International Relations.

Course Outline:

1. Introduction, Nature and Scope of International Relations;
2. Approaches to the Study of International Relations:
 - a) Realism, neo realism b) Idealism (Liberalism) c) Behaviouralism
3. Concept of Nationalism
4. Modern State System and Sovereignty
5. Doctrine of Power in International Relations:
 - a) Elements of Power b) Balance of Power.
6. National Interests in International Relations
7. Concept of Diplomacy
8. Huntington theory of Clash of civilization
Fukuyama theory of End of History

Recommended Books:

1. Bruce Russett, *Grasping the Democratic Peace: Principles for post Cold War World*, Princeton, Princeton University Press, 1993.
2. Chris Brown, *Understanding International Relations*, London, Palgrave, 2005.
3. Hans J. Morgenthau, *Politics Among Nations*, New York, McGraw Hill, 1993.
4. J. Steans and L. Pettiford, *International Relations: Perspectives and Themes*, Harlow, Pearson Education Press, 2005.
5. James E. Dougherty and Robert L. Pfaltzraff Jr. *Contending Theories of International Relations: Comprehensive Survey*, Ed (New York), Harper and Row Publishers, 1981
6. John Baylis and Steve Smith, *The Globalization of World Politics: An introduction to International Relations*, Oxford University Press, London, 2005
7. John T. Rourke, *International Politics on the World Stage*, Boston, Boston University Press, 2004.
8. Joshua Goldstein, *International Relations* 9th edition
9. Karen A. Mingst, *Essentials of International Relations*, London, W.W. Norton & Company, 2004.
10. Robert Jervis and Art Robert, *International Politics: Enduring Concepts and Contemporary Issues*, New York, Addison Wesley, 2003.
11. Robert Jervis, *Perception and Misperception in International Politics*, Princeton, Princeton University Press, 1976.

Subject Specific Course		
Western Political Philosophy-I	Credit Hours:3(3+0)	Course Code: SSC-7

Objectives:

This course is designed to provide students grounding in evolution of Greek Political thought and institutions. The significance of this course is that Greek philosophy and institutions provided the basis for further development of the political studies.

Course Contents:

1. Political Institutions in ancient Greece
2. The Philosophy of Socrates
3. Political Philosophy of Plato
4. Political Philosophy of Aristotle

Recommended Books:

1. D.R. Bhandari, *History of European Political Thought*, New Delhi, 1962.
2. Earnest Barker, *Greek Political Thought: Plato & Aristotle*, London, 1964
3. Ebenstein, *Political Thought From Plato to Present*, London, 1986;
4. G.H. Sabine, *History of Political Thought*, London, 1980
5. Judd Herman, *Political Thought From Plato to Present*, Islamabad, National Book Foundation, 1982.

Eligibility for Admission: FA/FSc or equivalent)

Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository writing -1	03	Expository writing -2	03	Expository writing -3	03	History of KP (AH-2)	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Introduction to History (AH-1)	03	History of Umayyads (661—750 CE)	03
Civilization Course-1	03	Civilization Course-2	03	History of Ancient Civilization	03	Muslim Rule in South Asia (1526-1707 AD)	03
Natural Science-1	03	Natural Science-2	03	Islamic History (571-661)	03	History of Freedom Movement (1857-1947 CE)	03
Social Science-1	03	Social Science-1	03	Muslim Rule in South Asia (711-1526 AD)	03	History of Europe (1453—1789 CE)	03

Subject Specific Course		
Introduction to Ancient Civilization	Credit Hours:3(3+0)	Course Code: SSC-1

Course Description:

The History of Ancient Civilizations is the study of the achievements, contribution, causes of development and downfall, and the legacy left by famous civilizations of the world such as Indus Civilization, the Mesopotamian Civilization, and the Egyptian Civilization.

Learning Outcomes:

The course will enable the students to study different aspects of the famous and first advanced civilizations in the world—viz. Indus Civilization, Mesopotamian Civilization, and Egyptian Civilization—particularly, agriculture, art and architecture, astronomy and astrology etc. and to identify, describe, and compare/contrast these civilizations.

Course Contents:

1. Egyptian Civilization:

Introduction; Geography of Egypt; Political History; Government System: Punishment by Government; Art: Sculpture, Painting, Relief; Agriculture and Irrigation; Industry and Trade; Religion and Belief of Life after Death; Magic; Science: Astronomy, Mathematics, Medicine; Literature; Writing: Hieroglyphic, Hieratic, and Demotic; Architecture: Karnak Temple and Luxor Temple; Pyramids; Pyramid of Khufu

2. Mesopotamia:

- Sumerian Civilization:
Introduction; Political System; Agriculture; Trade; Cuneiform Script; Literature; Science; Art and Architecture; Law; Religion;
- Babylonian Civilization:
Introduction; Political System; Trade and Craft; Literature; Hammurabi's Code of Law; Religion;
- Assyrian Civilization:
Introduction; Political System; A Warrior Nation; Weapons; Assyrian Imperialism and its Impact; Trade; Sculptures; Medicine; Religion

3. Indus Valley Civilization:

Introduction; Theories about Origin of the Indus Valley Civilization;
Main Sites: such as Harappa and Mohenjodaro; Town Planning; Pottery; Trade; Burial Practices; Seals; Art and Craft; Agriculture; Industry; Communication; Writing; Weapons; Religion; Decline

Suggested Readings

1. Burkitt, M. C. *Our Early Ancestors*. Cambridge: Cambridge University Press, 1929.
2. Burns, E. M. and P. L. Ralph. *World Civilizations*. London: W.W. Norton & Co. Ltd., 1991.
3. Cary, C. A. *History of the Greek World: From 323 to 146 BC*. London: Methuen & Co. Ltd., 1951.
4. Durant, Will, and Ariel Durant. *The Story of Civilization: Our Oriental Heritage*. Vol. 1. New York: Simon & Schuster, 1954.
5. Easton, Stewart C. *The Heritage of the Past: Earliest Times to 1500*. New York: Holt Rinehart Winston, 1965.
6. Frankfort, Henri. *The Art and Architecture of the Ancient Orient*. London: Penguin Books, 1958.
7. Gibb, H. A. R. *Studies on the Civilization of Islam*. London: Princeton University Press, 1962.
8. Graig, A. M. *The Heritage of World Civilizations*. 2 Vols. New York: Pearson Education, 1986.
9. Hasan, Sibte. *Pakistan mayn Tahzib ka Irtiqā* (Urdu). Karachi: Maktabah Danyal, 1977.
10. Kosambi, D. D. *The Culture and Civilization in Ancient India: An Historical Outline*. New Delhi: Vikas Publishing House Pvt. Ltd., 1982.
11. Masson-Oursel, Paul, H. de Willman-Grabowska, and Philippe Stern. *Ancient India and Indian Civilization*. London: Routledge, 1934.
12. Reither, J. *World History: A Brief Introduction*. New York: McGraw-Hill, 1973.
13. Roberts, J. M. and O. A. Westad. *The History of the World*. 6th edn., New York: Oxford University Press, 2013.
14. Tannebaum, Edward R. *A History of World Civilizations*. New York: John Wiley & Sons, 1973.
15. Toynbee, Arnold J. *Hellenism: The History of a Civilization*. Oxford: Oxford University Press, 1959.
16. Wallbank, T. W. and A. M. Taylor. *Civilization: Past and Present*. Vol. 1. 3rd edn., Chicago: Longman, 1954.
17. Whiller, Mortimer. *Five Thousand Years of Pakistan*. Karachi: Royal Book Company, 1950.

Subject Specific Course		
Islamic History (571-661)	Credit Hours:3(3+0)	Course Code: SSC-2

Course Description:

This course aims at providing elaborate information regarding the life of Prophet Muhammad (SAW) and Islam. It also discusses the great revolution brought by the Prophet (SAW). It, moreover, deals with the period of Khulafay-e-Rashidin, and the political, social, economic and administrative developments during this period.

Learning Outcomes:

After studying this course, the students will be able to know the revolutionary changes brought by Islam in the Arabian society and the religious, economic and social and political thoughts and administration during the period of Khulafay-e-Rashidin.

Course Contents:

1. Pre Islamic Arabia:

Geography; Social, Economic, Religious, and Political Conditions; The City State of Makkah

2. The Holy Prophet (SAW) (571—632):

Early Life; Prophet-hood and Preaching of Islam; Response of the Society; Migrations to Abyssinia and Madinah; Socio-Economic and Cultural Conditions in Madinah; Contribution of Ansars and the Brotherhood; Charter of Madinah; Wars with Quraysh: Battles of Badar, Uhud, and Ahzab; Peace Accord of Hdaybiyah; Prophet's (SAW) Letters to Various Rulers; Conquest of Makkah; Battle of Hunayn; Spread of Islam in Arabian Peninsula; Tabuk Expedition; Prophet's (SAW) Last Pilgrimage; Khutbat-ul-Wida' and its Significance; The Last Days and Demise; Role and Contribution of Ashab-e-Suffah

3. Abu Bakar Sidique RA (632—634):

Life before Caliphate; Election as Caliph; Challenges before Him: Apostasy Movements, Rise of False Prophets, Refusal of the Payment of *Zakat*, and Consolidation of the Centre; Conquests and Relations with Iran, Syria, and Byzantine; Character and Achievements

4. Umar Faruq RA (634—644):

Life before Caliphate; Nomination as Caliph; Expansion of Muslim Power: Conquests of Iran, Syria, Palestine, Egypt, Azerbaijan, and Armeniya; Reforms and Administration; Projects of Public Welfare; Character and Achievements

5. Uthman RA (644—656):

Life before Caliphate; Election as Caliph; Conquest of North Africa, Cyprus, Tabaristan, Tukharistan, and Makran; Sabayi Movement and Opposition of Uthman RA;

Assassination and its Consequences; Services to the Cause of Islam; Codification of the Quran; Character and Achievements

6. Ali RA (656—661):

Life before Caliphate; Election as Caliph; Battles of Jamal and Siffin; Emergence of Khawarij and the Battle of Nahrawan; Assassination; Character and Achievements; Succession by Imam Hassan as Caliph and his Abdication

7. Administration and Structure of Government under Khulafay-e-Rashidin:

Administrative, Financial and Judicial System; Status of *Dhimis* and *Mawalis*; Social Life of the Muslims; Salient Features of the Khilafat-e-Rashidah

Suggested Readings

1. *Al-Quran al-Majid*.
2. The Books of *Ahadith*.
3. Ali, Syed Ameer. *A Short History of the Saracens*. Lahore: Sang-e-Meel Publications, 1985.
4. Hitti, P. K. *History of the Arabs*. London: Macmillan & Co Ltd, 1960.
5. Hamidullah, Muhammad. *The Muslim Conduct of State*. Lahore: Ch. Muhammad Ashraf Publishers and Printers, 1977.
6. Hamidullah, Muhammad. *The Battlefields of the Prophet Muhammad*. With Maps, Illustrations and Sketches. Lahore: Idara-e-Islamiyat, 1993.
7. Hussaini, S. A. Q. *Arab Administration*. Lahore: Ch. Muhammad Ashraf Publishers and Printers, 1970.
8. Nadvi, Shah Muin-ud-Din. *Tarikh-e-Islam*. 4 Vols. Lahore: Maktabah Danyal, 2006.
9. Numani, Shibli and Sayyad Sulaiman Nadvi. *Sirat-un-Nabi*. 7 Vols. Computerized edn., Karachi: Darul Ishaat, Urdu Bazaar, 2004.
10. Siddiqi, Amir Hassan. *The Origin and Development of Muslim Institutions*. Karachi: Jamiyat-ul-Fallah Publications, 1962.

Subject Specific Course		
Muslim Rule in South Asia (711-1526 AD)	Credit Hours:3(3+0)	Course Code: SSC-3

Course Description:

The course deals with the foundation of Muslim rule and the political and administrative developments in the Delhi Sultanate. The course also focuses on the political theories of the Sultans, coupled with their administrative styles and socio-religious ideas.

Learning Outcomes:

After studying this course, the students will be able to understand the politics and administration of the Delhi Sultans, the problems faced by the nascent Muslim rule in a Hindu dominated region and comprehend the political theories and administrative ideals of the Sultans of Delhi.

Course Contents:

1. Geographical Unity of Indus Valley:

Geographical Features; Geography of Indus Valley and its Significance

2. Primary Sources: Introduction to Primary Sources of the Period

3. South Asia on the Eve of Arab Conquest:

- Historical Background;
- Geographical, Political, Social, Religious, and Economic Conditions of South Asia;
- Its Relations with Neighbouring Regions

4. Causes of Arab Invasion of Sindh:

- Muhammad bin Qasim and His Conquests in Sindh and Gujarat;
- Arab Administration in the Conquered Territories;
- Settlement of Brahmanabad;
- Foundation of Al-Mansurah;
- Political, Cultural, Religious, and Social Impacts of the Arab Conquests

5. Sultan Mahmud of Ghaznah (997—1030):

- Causes of His Indian Campaigns and their Significance and Impacts;
- His Character and Achievements

6. Ghaznavids at Lahore:

- Successors of Sultan Mahmud of Ghaznah;
- Lahore as Centre of Art and Literature;
- Downfall of the Ghaznavids

7. Sultan Shahabuddin Muhammad of Ghaur (1175—1206):

- His Campaigns in India;
- Character and Achievements;
- Muizzi Malaks;
- Causes of the Defeat of the Hindu Rajas

8. Dynasty of Ilbari Turks (Slave Dynasty):

- Sultan Qutbuddin Aibak (1206—1210);
- Sultan Shamsuddin Iltutmish (1211—1236):
 - Early Difficulties and Achievements as the Real Founder of the Sultanate of Delhi;
 - Relations with the Caliphate;
 - Administration
- Sultanah Raziyah (1236—1239) and Her Reign;

- Successors of Sultanah Raziyah and Ascendency of ‘the Forty’ (*Umara-e-Chihalgan*);
 - Sultan Nasiruddin Mahmud (1246—1266) and His Reign;
 - Sultan Ghiyasuddin Balban (1266—1286):
 - His Theory of Kingship;
 - Consolidation of the Sultanate;
 - Mongol Policy;
 - His Successors
- 9. Slave System as a Source of Weakness and Strength**
- 10. Khalji Dynasty (1290—1320):**
- Significance of Khalji Revolution;
 - Jalaluddin Firuz Khalji (1290—1296): His Rule and Character;
 - Sultan Alauddin Khalji (1296—1316):
 - His Reforms and Economic Policy;
 - Conquests;
 - Deccan Policy;
 - Malak Kafur;
 - Successors of Alauddin Khalji (1316—1320)
- 11. Tughluq Dynasty (1320—1412):**
- Ghiyasuddin Tughluq (1320—1325): His Administration and Character;
 - Sultan Muhammad bin Tughluq (1325—1351):
 - His Character and Personality;
 - His Plans and their Failure;
 - Rebellions;
 - Deccan Policy;
 - Sultan Firuz Shah Tughluq (1351—1388):
 - Administrative Reforms;
 - Military Expeditions;
 - Public Works;
 - Religious Policy
- 12. Amir Timur’s Invasion (1398) and End of the Tughluq Dynasty**
- 13. Sayyid Dynasty (1414—1451):**
Sultan Khizar Khan: Character and Achievements; Successors of Khizar Khan
- 14. Lodi Dynasty (1451—1526):**
Bahlul Lodi and Foundation of Lodi Rule; Sultan Sikandar Lodi: His Administration and Religious Policy; Sultan Ibrahim Lodi and the End of the Delhi Sultanate
- 15. Causes of the Downfall of Delhi Sultanate**
- 16. Administration of Delhi Sultanate:**
Central and Provincial Departments; Army; Land Revenue System; Judiciary
- 17. Social and Cultural Developments Under the Sultans of Delhi:**
Historiography; Literature; Education; Art and Culture; Architecture: Main Characteristic of Indo-Muslim Architecture; Important Buildings of the Period; Social and Economic Conditions
- 18. Religious Trends during the Sultanate Era:**
Role of Ulama; Sufi Orders and Role of Sufis; Bhagti Movement: Its Origin and Impacts
- Suggested Readings**

1. Ahmad, Muhammad Aziz. *Political History and Institutions of the Early Turkish Empire of Delhi (1206—1290)*. Lahore: Research Society of Pakistan, 1987.
2. Habibullah, A. B. M. *The Foundation of Muslim Rule in India: A History of the Establishment and Progress of the Turkish Sultanate of Delhi (1206—1290 A.D.)*. 2nd revised edn., Allahabad: Central Book Depot, 1961.
3. Ikram, S. M. *History of Muslim Civilization in India and Pakistan*. 3rd edn., Lahore: Institute of Islamic Culture, 1982.
4. Jackson, Peter. *The Delhi Sultanate: A Political and Military History*. Cambridge: Cambridge University Press, 1999.
5. Lal, Kishori Saran. *History of the Khaljis: A.D. 1290—1320*. Karachi: Union Book Stall, n.d.
6. Lane-Poole, Stanely. *Mediaeval India under Muhammadan Rule (A.D. 711—1764)*. Reprint, Lahore: Sang-e-Meel Publications, 1997.
7. *Longmans History of India (From the Beginning to A.D. 1526)*. Bombay: Longmans Green and Co., 1947.
8. Majumdar, R. C., H. C. Baychaudhuri, Kalinkinkar Datta. *An Advanced History of India*. Reprint, Lahore: Famous Books, 1992.
9. Qureshi, I. H. *The Administration of the Sultanate of Delhi*. 4th edn. revised, Karachi: Pakistan Historical Society, 1958.
10. Qureshi, I. H. *Muslim Community of the Indo-Pak Subcontinent*. Karachi: University of Karachi, 1966.
11. Qureshi, I. H., ed. *A Short History of Pakistan*. Reprint, Karachi: University of Karachi, 2010.

Subject Specific Course		
History of Umayyads (661—750 CE)	Credit Hours:3(3+0)	Course Code: SSC-4

Course Description:

This course familiarizes the students with the period of Umayyads' rule which was the great landmark in the political and cultural history of Islam. Besides studying cultural and intellectual currents of the period, the course familiarizes the students with the Umayyad's administration both the central and provincial.

Learning Outcomes:

After studying this course, the students will be able to comprehend the administrative setup and expansionist policy pursued by the Umayyads, and socio-political and cultural progress in the period.

Course Contents:

1. **The Umayyah and His Descendants:** Their Role in the Politics of Makkah
2. **Amir Muawiya (661—680):**
Accession; Consolidation of Umayyad Rule; Changed Nature of Administration; Internal and External Policies; Character and Achievements
3. **Yazid bin Muawiya (680—683):**
Nomination and Accession; Conflict with Imam Hussain; The Tragedy of Karbala and its Consequences; Career and Character
4. **Marwan bin Hakam (683—685):**
Accession; Battle of Marj-e-Rahat; Second Civil War and Consolidation of Umayyad's Power; Policies and Character
5. **Abdul Malik bin Marwan (685—705):**
Accession; Second Civil War; Suppression of Rebellions; Real Founder of the Umayyad Dynasty; Administrative Policies, Reforms and Developmental Works; Character and Achievements
6. **Walid bin Abdul Malik (705—715):**
Accession; Expansion of the Empire; Administrative Policies, and Reforms; Developmental Works; Character and Achievements
7. **Sulaiman bin Abdul Malik (715—717):**
Accession; Policy towards Renowned Generals; Siege of Constantinople; His Character and Policies, and their Consequences
8. **Umar bin Abdul Aziz (717—720):**
Accession; Policies and Reforms and their Effects; Character and Achievements
9. **Yazid II (720—724):** Estimate of His Reign and Policies
10. **Hisham and His Successors (724—750):**
Accessions; Important Events and Issues; The Third Civil War
11. **The Abbasid Movement and Downfall of the Umayyad Dynasty:** Causes of the Fall of the Umayyads
12. **Political and Religious Division and Movements of the Period:**
The Sunnis; The Shi'ites; The Kharijites; The Mutazilites
13. **Society under the Umayyads:**
Social Classification: The Arabs, Mawalis, Zimis, and Slaves; Culture; Sciences; Literature
14. **Damascus:** Emergence and Role as Political and Economic Power Centre
15. **Central and Provincial Administration:** Civil; Military

16. Financial and Revenue Policy, System and Development under the Umayyads

Suggested Readings

1. Abbassi, Mahmud Ahmad. *Khilafat-e-Muawiya wa Yazid*. 4th edn., Karachi: Maktabah Mahmud, 1962.
2. Abbassi, Mahmud Ahmad. *Tahqiq Mazid bah Silsilah-e-Khilafat-e-Muawiya wa Yazid*. Karachi: Maktabah Mahmud, n.d.
3. Al-Tabari, Jafar Muhammad bin Jarir. *Tarikh-e-Tabari*. Karachi: Nafees Academy, 2004.
4. Arnold, T. W. *Legacy of Islam*. London: Oxford University Press, 1952.
5. Aslam, M. *Muslim Conduct of State*. Lahore: Ashraf Press, 1942.
6. Hamidullah, Muhammad. *The Muslim Conduct of State*. Lahore: Ch. Muhammad Ashraf Publishers and Printers, 1977.
7. Hitti, P. K. *History of the Arabs*. London: Macmillan Education Ltd, 1960.
8. Holt, P. M. *Cambridge History of Islam*. London: Cambridge University Press, 1970.
9. Hussaini, S. A. Q. *Arab Administration*. Lahore: Ch. Muhammad Ashraf Publishers and Printers 1970.
10. Ibn Athir. *Tarikh al-Kamil*. Vol. V, Part-I. Trans. Abul Khair Maududi. Hyderabad (Deccan): n.p., 1938.
11. Ibn Kathir, Imad-ud-Din Abul Fida Ismail. *Tarikh Ibn Kathir*. Trans. Abu Talha Muhammad Asghar Mughal. Karachi: Dar-ul-Ishaat, 2008.
12. Ibn Khaldun, Abdur Rahman. *Tarikh Ibn Khaldun*. Karachi: Dar-ul-Ishaat, 2009.
13. Levy, R. *Social Structure of Islam*. Cambridge: Cambridge University Press, 1969.
14. Maududi, Syed Abul Ala. *Khilafat wa Malukiyat*. Lahore: Tarjuman ul Quran, 2016.
15. Muir, William. *The Caliphate: Its Rise, Decline and Fall*. Edinbrough: John Grant, 1963.
16. Nasr, Seyyed Hussain. *Ideals and Realities of Islam*. Boston: Beacon Press, 1972.
17. Nasr, Seyyed Hussain. *Science and Civilization in Islam*. New York: Cornel University Press, 1970.
18. O'Leary, De Lacy. *How Greek Science Passed to the Arabs*. London: Routledge & Kegan Paul Ltd., 1979.

Subject Specific Course		
Muslim Rule in South Asia (1526-1707 AD)	Credit Hours:3(3+0)	Course Code: SSC-5

Course Description:

As per linear successor to the dwindling Muslim powers in the subcontinent, Mughals were able to re-establish the government writ on a far wider scale than under the previous rulers with a fair share of adversity. The greater Mughals managed to evolve a viable political system and left to posterity glory, they carried for themselves a distinct place in the subcontinent history. The purpose of this course is to highlight some important aspects of Mughal rule in India with equal emphasis on conquests and other considerations.

Learning Outcomes:

After studying this course, the students will be able to understand the nature of politics and administration of the Mughals, comprehend the political theories and administrative ideals of the Mughal emperors, and will know the nature and significance of revivalist movements during the Mughal Era.

Course Contents:

1. Primary Sources:

- An Outline of Major Primary Sources of the Period that should include *Tuzuk-e-Baburi*, *Ayin-e-Akbari*, *Humayun Namah*, *Tuzuk-e-Jahangiri*, and *Shah Jahan Namah*

2. Political and Social Conditions of South Asia on the Eve of the Mughal Invasion

3. Zahiruddin Muhammad Babur (1526—1530):

Early Life; First Battle of Panipat and Foundation of Mughal Empire; Wars with the Rajputs; Character and Achievements

4. Nasiruddin Muhammad Humayun (1530—1540, 1555—1556):

Difficulties after His Accession; Defeat at the Hands of Sher Shah Suri; Humayun in Exile; Reoccupation of the Seat

5. Sher Shah Suri and the Later Rulers of Sur Dynasty (1540—1556):

Early Life; Capture of Throne; Conquests; His Reforms; Successors of Sher Shah and the End of Sur Dynasty

6. Jalaluddin Muhammad Akbar (1556—1605):

Early Life; Accession to the Throne; Second Battle of Panipat; His Court; Bairam Khan and His Downfall; Conquests; Deccan Policy; Rajput Policy; Engagements and Wars in the North West with Afghans; Religious Policy; Din-i-Illahi and Reforms; Administration; Character and Achievements

7. Nuruddin Muhammad Jahangir (1605—1628):

Early Life and Accession; Khusrau's Revolt; Nur Jahan; Qandahar's Question; Revolts of Khurram and Mahabat Khan; Activities of Europeans; Character and Achievements

8. Shahabuddin Muhammad Shah Jahan (1628—1658):

Accession to the Throne; Golden Period of the Mughal Rule; Central Asian Policy and Qandahar; Deccan Policy; Relations with English East India Company; War of Succession; Character and Achievements

9. Muhiyuddin Muhammad Aurangzeb Alamgir (1658—1707):

Accession and Theory of Kingship; Military Expeditions; Religious Policy; Policy towards Marathas, Sikhs, and Afghans; Character and Achievements

Suggested Readings

1. Ahmad, Khwajah Nizamuddin. *The Tabaqat-i-Akbari: (A History of India from the early Musalman invasions to the thirty-eight year of the reign of Akbar)*. English trans. Brajendra Nath De, revised & ed. Bains Prashad. Delhi: Low Price Publications, 1992.
2. Ali, Mubarak. *Mughal Darbar* (Urdu). Lahore: Nigarshat Publishers, 1986.
3. Allami, Abu 'l-Fazl. *The Ain-i Akbari*. English trans. H. S. Jarrett. 2nd edn. Corrected and Further Annotated by Sir Jadunath Sarkar. 3rd edn., reprint from 2nd edn. of 1949. New Delhi: Oriental Books Reprint Corporation, 1978.
4. Babur, Zahiruddin. *Babur-Nama: (Memoir of Babur)*. Translation from the Original Turki Text by Annette S. Beveridge. 1st Pakistani edn., Lahore: Sang-e-Meel Publications, 1975.
5. Begam, Gul-Badan. *The History of Humayun (Humayun-Nama)*. Translated with Introduction, Notes, Illustration and Bibliographical Appendix and reproduced in the Persian from the only known MS of the British Museum by Annette S. Beveridge. 2nd Reprint, Delhi: Low Price Publications, 1994.
6. Haig, Wolseley. *The Cambridge History of India: The Mughul Period*. Vol. IV. The University of Virginia: Macmillan, 1937.
7. Ikram, S. M. *History of Muslim Civilization in India and Pakistan*. 3rd edn., Lahore: Institute of Islamic Culture, 1982.
8. Jahangir, *Tuzuk-e-Jahangiri*. Urdu trans. Salim Wahid Salim. Lahore: Majlas Taraqi Adab, 1960.
9. Lane-Poole, Stanley. *Mediaeval India under Muhammadan Rule (A.D. 711—1764)*. Reprint, Lahore: Sang-e-Meel Publications, 1997.
10. Qureshi, I. H. *The Administration of the Mughul Empire*. Karachi: University of Karachi, 1966.
11. Qureshi, I. H., ed. *A Short History of Pakistan*. Reprint, Karachi: University of Karachi, 2010.
12. Majumdar, R. C., H. C. Raychaudhuri, and Kalikinkar Datta. *An Advanced History of India*. Reprint, Lahore: Famous Books, 1992.

Subject Specific Course		
History of Freedom Movement (1857-1947 CE)	Credit Hours:3(3+0)	Course Code: SSC-6

Course Description:

The purpose of the course is to discuss political, constitutional, economic and religious struggle of the Muslims of South Asia under the British Raj. After about eight hundred years' Muslim rule, India came under the British. Therefore, a triangular struggle ensued after 1857 which culminated in the freedom of India. Hindu-Muslim tangle sharpened to such an extent that the Muslims demanded a separate homeland. The struggle for Pakistan is one of the most complicated, complex and painful era of the Muslims of South Asia. They got Pakistan in 1947 but at a very high price of life and property.

Learning Outcomes:

After completing this course, students will understand the origin and outcome of the Muslim struggle for political and economic empowerment, the constitutional battle of Muslim League, the struggle of Muslim leaders such as Sir Syed Ahmad Khan, Sir Muhammad Iqbal and Muhammad Ali Jinnah and the creation of Pakistan.

Course Contents:

1. The Arrival of the Europeans and the Rise of British Rule in India
2. The Uprising of 1857 and its Impact on India
3. The Rise of Indian Nationalism and the Creation of Indian National Congress
4. Urdu- Hindi Script Controversy
5. Condition of Muslim Community after 1857 and the Rise of Muslim Nationalism
6. Aligarh Movement and its Social, Political and Religious Contributions
7. Sir Sayed Ahmad Khan and His Services
8. Parallel Movements to Aligarh: Deoband, and Nadwat-ul-Ulama
9. Partition of Bengal, 1905
10. Indians' Response to the Partition of Bengal
11. Simla Deputation and the Creation of All India Muslim League
12. The Indian Council Act of 1909 and Separate Electorate
13. Lucknow Pact, 1916, and the Government of India Act, 1919
14. Khilafat and Hijrat Movements and their Effects on the Muslims of India
15. The Indian Constitutional Problem and Efforts for Solution:
Simon Commission; Nehru Report; Jinnah's Fourteen Points; Three Sessions of Round Table Conference; Gandhi-Irwin Pact; Communal Award, 1932; Poona Pact; Government of India Act, 1935
16. Political Philosophy of Iqbal and His Allahabad Address
17. Elections of 1937 and Congress Rule in the Provinces
18. Genesis of the Idea of Pakistan; Lahore Resolution, 1940
19. Cripps and Cabinet Mission Plans
20. Transfer of Power (3rd June Plan) and Partition
21. The Radcliffe Boundary Commission Award
22. Controversy about the Governor-Generalship of Pakistan and its Effects on the Partition

Suggested Readings

1. Bin Sayeed, Khalid. *Pakistan: The Formative Phase, 1857—1948*. Karachi: Oxford University Press, 1998.

2. Bose, Sugata, and Ayesha Jalal. *Modern South Asia: History, Culture, Political Economy*. Lahore: Sang-e-Meel Publications, 1998.
3. Chand, Tara. *History of the Freedom Movement in India*. Vols. I–IV. Lahore: Book Traders, 1972.
4. Chandra, Bipan et.al. *India's Struggle for Independence, 1857—1947*. New Delhi: Penguin Books, 1989.
5. Moin, Mumtaz. *The Aligarh Movement (origin and early history)*. Karachi: Salman Academy, 1976.
6. Nehru, Jawaharlal. *The Discovery of India*. New Delhi: Oxford University Press, 1981.
7. Qureshi, Ishtiaq Hussain. *The Struggle for Pakistan*. Karachi: University of Karachi, 1974.
8. Roberts, P. E. *History of British India*. London: Oxford University Press, 1952.
9. Talbot, Ian. *Provincial Politics and the Pakistan Movement: The Growth of the Muslim League in North-West and North East India, 1937—47*. Karachi: Oxford University Press, 1988.
10. Waheed-uz-Zaman. *Towards Pakistan*. Lahore: Publishers United, 1978.
11. Wolpert, Stanly. *A New History of India*. New York: Oxford University Press, 1997.

Subject Specific Course		
History of Europe (1453—1789 CE)	Credit Hours:3(3+0)	Course Code: SSC-7

Course Description:

This course focuses on a very important period of European history in which Europe was gradually being transformed from medieval society to a modern society. The cultural and intellectual movements such as renaissance, reformation and enlightenment are the special features of this course.

Learning Outcomes:

After studying this course, the students will be able to know that how Europe was transformed into a modern society, what are philosophical and intellectual movements and trends of the period and will understand the political developments of the ruling class and socio-religious ideas of the people.

Course Contents:

1. Europe:

An Introduction; Geography, Greco-Roman Civilizations, Christendom and Holy Roman Empire

2. Renaissance:

Causes and Course; Change in Art, Literature, and Architecture; Development in Science; Role of Italian States; Spread of Renaissance in Europe; Effects on Society, Humanism, and Individualism

3. Geographical Discoveries: The Role of Portugal, Spain, France, the Netherlands, and England

4. Reformation Movement:

Causes, Course, and Consequences; Martin Luther; The Spread of Protestantism; Counter-Reformation

5. Predominance of Spain:

- Charles V:
 - His Internal and External Policies;
 - War with Ottomans;
- Philip II:
 - His Internal and External Policies;
 - Revolt of the Netherlands

6. Absolute Monarchy in France

7. Predominance of France:

Bourbon Dynasty, Henry IV, Louis XVI, Cardinal Richelieu, Cardinal Nazarene; Thirty Years War; French Revolution

8. Age of Enlightenment:

Philosophers; New Trends; Enlightened Despots

9. The Struggle for Constitutional Government in England

10. England from 16th to 18th Century

Tudor Dynasty; Queen Elizabeth; British Policy of Expansion; Glorious Revolution

11. Russia:

Peter the Great; Warm Water Policy; Catherine the Great

12. Europe and Ottoman Empire

Suggested Readings:

1. Gonzalez, Justo L. *A History of Christian Thought: From the Protestant Reformation to The Twentieth Century*. Vol. 3. Nashville: Abingdon Press, 1987.
2. Grant A. J. *Outline of European History*. New York: Longmans, Green and Co. Ltd., 1945.
3. Lindemann, Albert S. *A History of Modern Europe: From 1815 to the Present*. West Sussex: John Wiley & Sons, 2012.
4. Littlefield, Henry. *History of Europe, 1500—1848*. New York: Branes & Noble Inc., 1939.
5. Lowe, Norman. *Mastering Modern World History*. London: Palgrave Macmillan, 2013.
6. Merriman, J. *A History of Modern Europe: From the Renaissance to the Present*. Vol. 1. New York: WW Norton & Company, 2009.
7. Muir, Ramsay. *The Expansion of Europe: The Culmination of Modern History*. Boston: Houghton Mifflin Co., 1917.
8. Mukherjee, L. *A Study of European History, 1453—1815*. Calcutta: Gondal Brothers & Co., Private Ltd., n.d.
9. Persson, Karl Gunnar. *An Economic History of Europe: Knowledge, Institutions and Growth, 600 to the Present*. 2nd edn., Cambridge: Cambridge University Press, 2010.
10. Rickard, J. A. and Albert Hyma. *Ancient, Medieval and Modern History*. New York: Branes & Noble, Inc., 1956.
11. Taylor, Alan John Percivale. *The Struggle for Mastery in Europe, 1848—1918*. Oxford: Clarendon Press, 1954.
12. Viault, Birdsall. *Schaum's Outline of Modern European History*. New York: McGraw Hill Professional, 1990.
13. Viault, Birdsall S. *Modern European History: The History of Europe Since the Late Middle Ages*. London: Penguin Group, 2005.
14. Witte, John. *The Reformation of Rights: Law, Religion and Human Rights in Early Modern Calvinism*. Cambridge: Cambridge University Press, 2007.

Eligibility for Admission: FA/FSc or equivalent)

Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository Writing -1	03	Expository Writing -2	03	Expository Writing -3	03	Art & Humanities (AH-2)	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Art & Humanities (AH-1)	03	Sociology of Human Rights	03
Civilization Course-1	03	Civilization Course-2	03	Development of Social Thoughts	03	Introduction to Social Research	03
Natural Science-1	03	Natural Science-2	03	Sociology of Religion	03	Pakistani Society & Culture	03
Social Sciences-1	03	Principles of Sociology (SS-2)	03	Sociological Theories	03	Gender Studies	03

Subject Specific Course		
Principles of Sociology	Credit Hours:3(3+0)	Course Code: SS-2

Course Objectives:

The course is designed to introduce the students with sociological concepts and the discipline. The focus of the course shall be on significant concepts like social systems and structures, socio-economic changes and social processes. The course will provide due foundation for further studies in the field of sociology.

Learning Outcomes:

For understanding the basics of social interaction, this course would particular trained our students in managing the daily life patterns of social interaction.

Course Outline:

1. Introduction

Definition, Scope, and Subject Matter, Sociology as a Science, Historical back ground of Sociology

2. Basic Concepts

Group, Community, Society, Associations Non-Voluntary, Voluntary, Organization Informal, Formal, Social Interaction, Levels of Social Interaction, Process of Social Interaction, Cooperation, Competition, Conflict, Accommodation, Acculturation and diffusion, Assimilation, Amalgamation

3. Social Groups

Definition & Functions

Types of social groups

In and out groups, Primary and Secondary group, Reference groups, Informal and Formal groups, Pressure groups

4. Culture

Definition, aspects and characteristics of Culture

Material and non material culture, Ideal and real culture

Elements of culture

Beliefs, Values, Norms and social sanctions

Organizations of culture

Traits, Complexes, Patterns, Ethos, Theme

Other related concepts

Cultural Relativism, Sub Cultures, Ethnocentrism and Xenocentrism, Cultural lag

5. Socialization & Personality

Personality, Factors in Personality Formation, Socialization, Agencies of Socialization, Role & Status

6. Deviance and Social Control

Deviance and its types, Social control and its need, Forms of Social control, Methods & Agencies of Social control

7. Collective Behavior

Collective behavior, its types, Crowd behavior, Public opinion, Propaganda, Social movements, Leadership

Suggested Readings:

1. Brown, K. (2004). *Sociology*. UK: Polity Press
1. Frank, N. M. (2003). *International Encyclopedia of Sociology*. U.S.A: Fitzroy Dearborn Publishers
2. Gidden, A. (2002). *Introduction to Sociology*. UK: Polity Press.
3. Henslin. J. M. (2004). *Sociology: A Down to Earth Approach*. Toronto: Allen and Bacon.
4. Kerbo, H. R. (1989). *Sociology: Social Structure and Social Conflict*. New York: Macmillan Publishing Company.
5. Koenig, S. (1957). *Sociology: An Introduction to the Science of Society*. New York: Barnes and Nobel.
6. Lenski, G., & Lenski, J. (1982). *Human Societies*. (4th ed.) New York: McGraw-Hill Book Company.
7. Leslie, G. et al. (1973). *Order and Change: Introductory Sociology* Toronto: Oxford University Press.
8. Macionis, J. J. (2005). *Sociology* (10th ed.) South Asia: Pearson Education
9. Macionis, J. J. (2006). *Sociology*. (10th ed.) New Jersey: Prentice-Hall
10. Tischler, H. L. (2002). *Introduction to Sociology* (7th ed.) New York: The Harcourt Press.

Subject Specific Course		
Development of Social Thoughts	Credit Hours:3(3+0)	Course Code: SSC-1

Course Objectives:

The course will provide familiarity about history of social thought, stages of social development and change. The course will emphasize contributions of Western, Eastern and Muslim Thinkers towards social thought and social development.

Learning Outcomes:

Development of Social thought will add to the treasure of knowledge of the students in many ways. It will help in understanding routine life social phenomena while keeping in view the contributions of different scholars made in the field of Sociology.

Course Outline:

1. Introduction

Historical Development of Social Philosophy, Difference between social thought and sociological theory

2. Early Social Thought

Folk Thinking, Greek, Egyptian, Babylonian, Chinese, Indian Social Thought

3. Contribution of Muslim Thinkers in Social thought

- Abuzar Ghafari
Wealth Theory
- Imam Ghazali
Causes of group life, Social justice, Educational reforms
- Ibn-E-Khuldun
Philosophy of history, Science of culture, Ethnocentrism, Rise & fall of nations, Causes of social life
- Shah Waliullah
Evolution of society, Causes of social life, Societal disease, Concept of perfect society
- Moulana Ubedullah Sindhi
 - Basic Human Ethics
- Allama Iqbal
Concept of self, Theory of religion, Concept of 'Ummah'

4. Classical Sociological Theory

Herbert Spencer, August Comte, Karl Marx, Emile Durkheim, Max Weber, Ferdinand D. Tonnies, Graham Sumner, Rober MacIver, Verlfredo Parato, G. Lunberg, Pitrim A Sorokin

Suggested Readings:

1. Barnes, H. E. (1966). *An Introduction to the History of Sociology*. (Ed.). Chicago: The University of Chicago Press.
2. Bogardus, E. S. (1960). *The Development of Social Thought*. (4th ed.). New York: Longmans, Green & Co.
3. Coser, L. A. (1971). *Master of Sociological Thought: Ideas in Historical Social Context*. New York, Harcourt Brace.
4. Coser, L. A. (1971). *Masters of Sociological Thought: Ideas in Historical and Social Context*. New York: Harcourt Brace Jovanovich Publishers.
5. Coser, L. A. (1977). *Masters of Sociological Thought*. New York: Harcourt Brace Jovanarich Publisher.
6. Dubin, R. (1978). *Theory Building*. New York: Maxwell, Macmillan.

7. Keat, R. & John, U. (1982). *Social Theory as Science*. London: Routledge and Kegan Paul Ltd.
8. Kinlock, G. C. (1987). *Sociological Theory: Its Development and Major Paradigms*. New York: McGraw Hill Inc.
9. Ritzer, G. (1988). *Sociological Theory*. Singapore: McGraw Hill.
10. Ritzer, G. (2000). *Sociological Theory*. (5th ed.). York: McGraw Hill Book Co.
11. Turner, J. H. (1987). *The Structure of Sociological Theory* Homewood Illinois: Dorsey Press.
12. Turner, J. H. (2003). *The Structure of Sociological Theory*. (7th ed. Australia: Thomson Wadsworth.
13. Zeitlin, L. M. (1981). *Ideology and the Development of Sociological Theory*. New Jersey: Prentice-Hall, Inc.

Subject Specific Course		
Sociology of Religion	Credit Hours:3(3+0)	Course Code: SSC-2

Course Objectives:

The course focuses on providing knowledge to the students regarding core concepts, theories and function of religion in the integration of society. Sociological analysis of the major religions with special focus on Islam will be carried out.

Learning Outcomes:

In today's globalized world, interfaith harmony is much needed. The subject of Sociology of Religion will orient our students to the philosophies of different religions of the contemporary world.

Course Outline:

1. Introduction

Definition of Religion, Elements of Religion, Sects and Cults

2. Theories of Religion

Sociological theories of religion, Psycho-analytical theory of religion, Evolutionary Sociological approaches

3. The Sociological Functions of Religion

Universal Order of Religion, Pragmatism in Religion, Integrating Power of Religion, and Religion and Social Ideals.

4. Sociological Analysis of major world religions: Islam Judaism, Hinduism, Christianity, Confucianism and Buddhism.

Religion as Agency of Social Control, Sociology of Islam:

1. The world view of Islam

- Human Nature and Human Personality
- Prophet's Sunnah as the Normative matrix of Islamic culture and Society
- Normative Foundation of Islamic Social Structure of Society
- Major Components of Social Structure
- Groups and Institutions in Islamic Society
- Institution of family and its place in the Islamic Social Scheme, socialization in Islamic Framework, persuasion and Motivation and their relation to Socialization Development of Attitudes.

2. Education as the mean of Socialization status of Ulama in the Muslim Society epilogue.

Suggested Readings:

1. Azzan, S. (1982). *Islam and Contemporary Society* (ed.). Islamic Council of Europe and Longman. London and New York.
2. Binder, L. (1963). *Religion and Politics in Pakistan*. California: University of California Press.
3. Evan, P. E. (1965). *Theories of Primitive Religions*. Oxford: Claneolan Press.
4. Johnstone, R. L. (1975). *Religion and Society in Interaction*. The Sociology of Religion, New Jersey Prentice-Hall.
5. Johnstone, R. L. (2001). *Religion in Society: A Sociology of Religion* (6th Ed.).
6. Monahan, S.C., & Mirola, W. A. (2001). *Sociology of Religion*. Upper Saddle River, NJ: Prentice-Hall.
7. Russell, T. M. (2003). *The Discipline of Religion: Structure, Meaning and Rhetoric*. Routledge. London and New York.

8. Saha, S. C. (2004). *Religious Fundamentalism in Developing Countries* Thomas Carr Greenwood Press. Westport, Connecticut.
9. Schneider, L. (1970). *Sociological Approach to Religion*. New York: Wiley and Sons.
10. Schneider, L. (1964). *Religion, Culture and Society: A Reader in the Sociology of Religion*. New York: John Wiley and Sons.
11. Thompson, L. (1988). *Religion: Sociology in Focus Series*. London: Long.

Subject Specific Course		
Sociological Theories	Credit Hours:3(3+0)	Course Code: SSC-3

Course Objectives:

The course provides a review of sociological theorists' i.e. classical, contemporary and modern sociological thinking. It focuses on the content and utility of theories in terms of understanding social world. While the course provides a general history of sociological theory, the focus remains on examining how theories have provided the basis for a better understanding of the character and dynamics of societies around the world. The contents of the course also help understand the nature of sociological theories.

Learning Outcomes:

The students will get command on different sociological theories which will enable them to cope with the modern day research studies effectively.

Course Outline:

9. Introduction

Meaning and Types, Development of sociological theory, Functions of sociological theory
Theory and Theorizing

10. Contemporary Sociological Theory

Talcott Parson, George Simmel, Robert K Merton, Ralph Dahrendorf, C.W.Mill, GH Mead, CH Cooley

11. Modern Sociological Theory

Pierre Bourdieu, Anthony Giddens, Jurgen Habermas, Michel Foucault, George Ritzer

Suggested Readings:

1. Ashley, D., & Orenstein, D. M. (2005). *Sociological Theory: Classical statements* (6th ed.). Boston, Massachusetts, USA: Pearson Education.
2. Berlin, I. (1967). *Karl Marx: His Life and Environment*. Time Inc Book Division, New York.
3. Durkheim, E. (1895). *The Rules of Sociological Method* (8th edition), trans. Sarah A. Solovay and John M. Mueller, ed. George E. G. Catlin (1938, 1964 edition).
4. Enan, M. A. (2007). *Ibn Khaldun: His Life and Works*. The Other Press. p. v. ISBN 983-9541-53-6.
5. Farganis, J. (2000). *Readings in Social Theory: The Classic Traditions to Post Modernism*, (3rd Ed). McGraw Hill.
6. Ferdinand, T. (ed. Jose Harris). (2001). *Community and Civil Society*, Cambridge University Press. ISBN 0-521-56119-1.
7. Fish, J. S. (2005). *Defending the Durkheimian Tradition. Religion, Emotion and Morality Aldershot*. Ashgate Publishing.
8. Gianfranco, P. (2000). *Durkheim*. Oxford: Oxford University Press.
9. Habermas, J. (1990). *The Philosophical Discourse of Modernity: Modernity's Consciousness of Time*, Polity Press, paperback, ISBN 0-7456-0830-2
10. Halfpenny, P. (1982). *Positivism and Sociology: Explaining Social Science*. London: Allen and Unwin.
11. Miller, D. (2009). *George Herbert Mead: Self, Language, and the World*. University of Texas Press. ISBN 0-292-72700-3.
12. Rickman, H. P. (1960). *The Reaction against Positivism and Dilthey's Concept of Understanding*, The London School of Economics and Political Science.
13. Ritzer, G. (1997). *Post Modern Social Theory*. McGraw Hill.
14. Ritzer, G. (2000). *Classical Sociological Theory*. (3rd ed.). McGraw Hill.

15. Ritzer, G. (2000). *Modern Sociological Theory*. (5th Ed). MicGraw Hill.

Subject Specific Course		
Sociological of Human Rights	Credit Hours:3(3+0)	Course Code: SSC-4

Course Objectives:

There is serious concern regarding basic human rights violation in general and in the third world in particular. The course of the sociology of human rights has been framed with the objective to provide information regarding the understanding of the philosophy of human rights in the local, national and international context. The students will then be promptly aware of the rights of the citizens, minority, children, prisoners, women etc and they shall then adopt better mechanism for Social Legislations-Constitutional provisions in favor of such deprived communities. Law relating to compulsory primary education, employment, labor legislations, health for all, social security, insurance schemes, human rights, trafficking in women and children and Legislations initiated by State Legislative Bodies shall be looked through the eyes that they shall meet regional, local and international social welfare needs.

Learning Outcomes:

This will orient students with the very basic concepts of law which would helpful in managing and understanding their routine life pattern.

Course Outline:

1. Introduction

Introduction and definition of Human Rights, Historical background of human rights, Need and importance of human rights in Pakistan

2. Human Rights and Islam

Islam and human rights, Human rights in Quran, The Hadith and Human Rights

3. Classification of Human Rights

Collective Rights, Ethnic and minority rights, Fundamental Rights, Constitutional rights

4. Internal Organization and Human Rights

- Women rights and CEDAW(Convention on the Elimination of All kind of Discrimination Against Women)
- Rights of the child (CRC)
- Rights of Minorities (Declaration on the rights of persons belonging to minorities 1992)
- Rights of the refugees (convention relating to the status of refugee 1951)

5. Human Rights in Pakistan

Fundamental rights of the citizens in Pakistan, Women rights in the constitution, Child rights in the constitution, Constitution and the minority.

6. Present Condition of Human Rights in Pakistan

Violation Of Human Rights In Pakistan, Human Trafficking, Women Rights Violation, Rights Of Children Violation, Prisoner's Rights Violation, Labor Rights

7. Human Rights and United Nation

2. Introduction of UNO
3. Charter based organs
4. International instruments (UN charter, Universal declaration of human rights, international covenant on civil and political rights 1966, international covenant on economic, social and cultural rights 1966)
5. The UNICEF
6. The UNHCR

7. The ILO

Suggested Readings:

1. Ahmad, K., & Khan, A. S. (1976). *Human Rights in Islam* (translation) Islamic foundation.
2. Ball, O., & Gready, P. (2006). *The No-Nonsense Guide to Human Rights*. Oxford: New Internationalist.
3. Beitz, C. R. (2009). *The Idea of Human Rights*. Oxford: Oxford University Press.
4. Brownlie, I. (2003). *Principles of Public International Law* (6th ed.). OUP.
5. Cassese, A. (1990). *Human Rights in the Changing World*. Policy press
6. Doebbler, C. F. J. (2006). *Introduction to International Human Rights Law*. Cd Publishing.
7. Donnelly, J. (2003). *Universal Human Rights in Theory and Practice* (2nd ed.). Ithaca: Cornell University Press.
8. Edward, L. (1998). *Encyclopedia of Human Rights* (2nd ed.) Taylor and Francis publisher.
9. Freeman, M. (2002). *Human Rights: An Interdisciplinary Approach*. Cambridge: Polity Press.
10. Glendon, M. A. (2001). *A World Made New: Eleanor Roosevelt and the Universal Declaration of Human Rights*. New York: Random House.
11. Haider, S. M. (1978). *Islamic Concept of Human Rights*. Lahore; Book House
12. Ignatieff, M. (2001). *Human Rights as Politics and Idolatry* (3rd print. ed.). Princeton, N.J.: Princeton University Press.
13. Ingam, A. (1994). *A Political Theory of Rights*. New York Clarendon p. Press
14. Ishay, M. R. (2008). *The History of Human Rights: From Ancient Times to the Globalization Era*. Berkeley, Calif.: University of California Press.
15. Khan, Z. (2007). *Human Rights: Theory and Practice* (2nd Revised Edition). Pakistan. Zaki Sons Karachi. ISBN. 969-8373-09-1
16. Moyn, S. (2010). *The Last Utopia: Human Rights in History*. Cambridge, Mass.: Belknap Press of Harvard University Press.
17. Shaw, M. (2008). *International Law* (6th ed.). Leiden: Cambridge University Press.

Subject Specific Course		
Introduction to Social Research	Credit Hours:3(3+0)	Course Code: SSC-5

Course Objectives:

The course aims to learn about the basic concepts of social research, various research methodologies, both quantitative and qualitative. The students will learn about the usage of various methodologies while conducting research on different topics. The main tools and research techniques will be studied. It is assumed that the students have a background in basic social statistics and in social theories. The students will also learn about certain specific computer software like SPSS, NUDIST and Ethnograph.

Learning Outcomes:

Today's era is the age of technological advancement and post industrialism and modernism. And it's all because of research in different disciplines. This course will equip students with the basic philosophy of research and its application while studying different social events and social problems in society.

Course Outline:

1. Introduction

Definition of Social Research, Characteristics of Scientific Social Research, Theory and Research, Qualitative and Quantitative Research Methods - An Introduction, Qualities of Good Researcher

2. Steps in Social Research

Choosing the Problem and its Significance, Review of Relevant Literature, Justification of Topic, Formulation of Objectives, Research Questions and Research Hypothesis, Theoretical Framework: Inductive and Deductive Ways of Theorizing, Conceptualizations and Operationalization, Data Collection, Data Analysis and Interpretation, Report Writing

3. Dimensions of Social Research

- Use of Research
 - Basic Research
 - Applied Research: Evaluation, Actions, Social Impact
- Purpose of Social Research: Exploratory, Descriptive, Explanatory
- Time Dimension in Social Research: Cross Sectional and Longitudinal Studies
- Data Collection and Analysis Techniques: Quantitative Data and Qualitative Data

4. Philosophical and Methodological Foundations of Social Research

- Meanings of Methodology and Methods in Social Research
- Ontology and Epistemology
- Positivist Social Research
- Interpretive Social Research
- Critical Social Research
- Feminist and Postmodern Social Research

5. The Literature Review

- Significance and Purpose of Literature Review
- Theoretical and Empirical Literature
- Ways to Do Literature Review

6. Ethical Considerations in Social Research

- Meanings of Being Ethical in Social Research
- Informed Consent and Use of Deception

- Confidentiality and Anonymity
- Privacy
- Data Security
- Power Relations between Researcher and Researched

Recommended Books:

1. Alwin, D. F. (2007). *Margins of Error: A Study of Reliability in Survey Measurements*. U.S.A. John Wiley & Sons, Inc.
2. Babbie, E. (2004). *The Practice of Social Research*. (10th Ed.). Belmont: CA Words Worth Publishing.
3. Babbie, E. (2005). *The Practice of Social Research*. Belmont, California: Wordsworth.
4. Baker, T. L. (1989). *Doing Social Research*. McGraw Hill.
5. Bridge, S., & Culhy. (2005). *Research Methods in the Social Science*. New Delhi: Vistaar Publisier.
6. Christopher, W. (2003). *Sociological Methods and Research*. London: Sage Publications.
7. Juliet, C., & Anselm, C. S. (2008). *Basics of Qualitative Research* (3rd Edition). New Delhi. Sage Publications New Delhi
8. Monette, D. R., Sullivan, T. J., & Dejong, C. R. (1998). *Applied Social Research: Tool for the Human Services* (4th Edition) New York: Harcout Brace College Publishers.
9. Nachimas, C. F. & David, N. (1997). *Research Methods in the Social Sciences* (5th Edition) New York: St. Martin's Press Inc.
10. Neuman, W. L. (2000). *Social Research Methods* (4th ed.) Allyn and Eacon., Boston.
11. Neuman, W. L. (2000). *Social Research Methods*. New York: Allyn and Bacon.
12. Somekh & Lewin. (2005). *Research methods in Social Sciences*, New Delhi. Vistaar, Publication.

Subject Specific Course		
Pakistani Society & Culture	Credit Hours:3(3+0)	Course Code: SSC-6

Course Objectives:

The course aims to make students learn about the nature and structure of Pakistani society. It aims to impart knowledge about national culture and sub-cultures of Pakistan. The course will develop understanding about the integrated function of various social institutions in the country.

Learning Outcomes:

This course will definitely help out students in a way where they will orient them about the social fabric and cultural artifacts of Pakistani society. This will also help in understanding different subcultures of Pakistan.

Course Outline:

1. Introduction

Definition of Society, Characteristics of Pakistani Society, Social Stratification, Cast, Class and Ethnicity

Social Institutions in Pakistan

Family, Religion, Economy, Politics, Education, Recreational

2. Educational Dynamics

Illiteracy, Literacy, Universal Primary Education Concept, Schools; Technical and Higher Education, Status of Formal and Informal Education

3. Historical Perspective of Pakistani Culture

Provincial Culture, Culture of Punjab, Culture of Sindh, Culture of KPK, Culture of Balochistan, Culture of Kashmir and Northern Areas

Urban and Rural Division of Pakistan

Rural Society, Urban Society, Rural Power Structure

Minority and Their Belief

Major Social Problems

Major Occupation and Production Activities

Suggested Readings:

1. Ahmad, S. A. (1975). *Mataloona: Pukhto Proverbs*. Oxford University Press, Karachi. p.57.
2. Ahmad, S. A. (1980). *Pukhtun Economy and Society. Traditional Structure and Economic Development in a Tribal Society*. London: Routledge and Kegan Paul. p.24.
3. Caroe, O. (1977). *A Review of Ahamd*. In *Asian affair*. , Vol.VII (October), pp. 352-3.
4. Churchill, W. (1898). *The Story of the Malakand Field Force*. Leo Cooper and Octopus Publishing Groups (2002) plc, London. pp. 51-72.
5. Dupree, L. (1980). *Afghanistan*. Princeton University Press. p.126.
6. Gluckman, M. (1971). *Politics, Law and Ritual in Tribal Society*. Basil Blackwell, Oxford.
7. Lindholm, C. (1996). *Frontier Perspective: Essay in Comparative Anthropology*. Karachi: Oxford University Press. p.196.
8. Mumtaz, K. (1987). *Women of Pakistan in Readings on Women in Pakistan*. John Murray. London. p .7.
9. Mumtaz, K., and Farida, S. (1987). *Women of Pakistan, Tow Steps Forward One Step Back*. Vanguard. p. 54-90.

10. Shaheed, F. and Mumtaz, K. (1990). *Women's Participation in Pakistan*.
11. Shaheed, F. et al. (1998). *Women in Politics: Participation and Representation in Pakistan*. Shirkat Gah, Pakistan. p.365.
12. Shaheed, F., and Aisha, L. F. (2004). *Great Ancestors: Women Asserting Rights in Muslim Contexts: Information & Training Kit*. Lahore, Pakistan: Shirkat Gah.
13. Spain, W. J. (1963). *The Pathan Border Line*. Mouton, The Hague. p.69.
14. Zia, S., and Bari, F. (1999). *Women's Political Participation in Pakistan* Unpublished Report.

Subject Specific Course		
Gender Studies	Credit Hours:3(3+0)	Course Code: SSC-7

Course Objectives:

The concepts about gender relations will be learnt. The historical movements and feminist perspectives about gender relations will be explored. The course will provide understanding about globalization and its role towards changing gender relation in various societies around the world. Special emphasis shall be given to Muslim and Pakistani societies. Specific areas of gender discrimination (both for men and women) will also be learnt.

Learning Outcomes:

As major chunk of the population comprised of women where they have been discriminated in many ways. This course will help students in analyzing the imbalances in society with respect to gender. This will also help them to correlate the concept of gender in its philosophical foundations.

Course Outline:

1. Introduction

Definition, Concepts and Importance, Gender Studies in International Setting, Gender Studies in Pakistani Perspective, Feminism

2. Major Feminist Perspectives

Liberal Feminism, Radical Feminism, Marxist Feminism, Theological Feminism

3. Gender and Human Rights

Definition and Nature of Human Rights, Collective Rights, Ethnic Minority Rights, Fundamental Rights, Property Rights

4. Gender and Politics

Gender and Third World Politics, Women Political Leaders, Past and Present, Women in the Legislatures and Executive of the Law, Power and Patriarchy, Women in Pakistani Political Setup, Women Participation in Local Government System

5. Gender and Education

Gender and education, Gender, Origin and development of education, Gender Education and religion, Gender Education and polity, Gender Education and economy, Gender Education and social mobility, Gender and Forms of education

6. Gender and Population

Population composition, Sex Composition, Gender Roles and Family Size, Gender and Reproductive Role, Gender and Youth problem, Gender and Population Issues, Changing Perspective of Gender Roles in Population

7. Gender and Development

Gender Roles, Access to Resources, Gender Disparity, Problems of Gender Development, The role of Development Aid in Gender development, The role of non-government organizations in Gender development, Journey from WID to GAD

Suggested Readings:

1. Beauvoir, S. D. (2007). *The Second Sex*, Vintage.
2. Bornsterin, K. (1995). *Gender Outlaw: On Men, Women and Rest of US*, Vintage.
3. Butler, J. (2004). *Undoing Gender*, Routledge.
4. Butler, J. (2006). *Gender Trouble: Feminism and the Subversion of Identity*, Routledge.
5. Foucault, M. (1990). *The History of Sexuality: An Introduction*, Vintage.
6. Jane, P. (2008). *50 Key Concepts in Gender Studies*, New Delhi. Sage Publication.
7. Johan, Z. S. (2008). *The Kaleidoscope of Gender*, New Delhi, Sage Publication.

8. Kapadia, K. (2002). *The Violence of Development*. London, Zed Books.
9. Kathy, D., Mary, S. E., and Judith, L. (2008). *Handbook of Gender and Women's Studies*, New Delhi, Sage Publication.
10. Mary, H. (2008). *What is Gender? (Sociological Approaches)*. New Delhi, Sage Publication.
11. Mead, M. (2001). *Male and Female*, Harper Perennial.
12. Mirza, J. (2002). *Between Chadar and the Market*. Karachi, Oxford University Press.
13. Radtke, H. L., and Henderikus, J. S. (1994-95). *Power and Gender*. London, Sage Publication.
14. Rege, S. (2008). *Sociology of Gender (The Challenge of Feminist Sociology knowledge)*. New Delhi, Sage Publication.
15. Ronnie, V. (2008). *Social and Gender Analysis in Natural Resource Management*, New Delhi, Sage Publication.
16. Shaista, I. (2000). *From Purdah to Parliament*. Karachi, Oxford University Press.
17. Sharlene, N. H. B. (2008). *Handbook of Feminist Research*. New Delhi, Sage Publication.
18. Sharukh Rafiq, S. (2000). *50 Years of Pakistan's Economy*. Oxford University Press.
19. Social Policy and Development Centre (2000). *Social Development in Pakistan*. New York, Oxford University Press.
20. Sterling, A. F. (2000). *Sexing the Body: Gender Politics and the Construction of Sexuality*, Basic Books. New Ed edition.
21. Sudah, D. K. (2000). *Gender Role*. India, A.P.H Publication.

Eligibility for Admission: FA/FSc or equivalent)

Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository Writing -1	03	Expository Writing -2	03	Expository Writing -3	03	Art & Humanities (AH-2)	03
Introduction to Statistics (QR-1)	03	Quantitative Reasoning -2 (QR-2)	03	Art & Humanities (AH-1)	03	SSC-4 Applied Statistics	03
Civilization Course-1	03	Civilization Course-2	03	SSC-1 Introduction to Probability Distribution	03	SSC-5 Probability & Probability Dist-I	03
Natural Science-1	03	Natural Science-2	03	SSC-2 Basic Statistical Inference	03	SSC-6 Design & Analysis of Experiment-I	03
Social Sciences-1 (SS-2)	03	Introduction to Economics (SS-2)	03	SSC-3 Introduction to Regression Analysis & Experimental Design	03	SSC-7 Regression Analysis	03

Subject Specific Course		
Introduction to Statistics	Credit Hours:3(3+0)	Course Code: QR-1

This course will provide knowledge about statistical concepts and thinking. The students will learn how best to collect and summarize data. It will encourage the students about the application of simple statistical techniques to analyze and interpret results.

After this course students will be able to apply basic statistical procedures for analysis of data.

Course Contents:

The nature and scope of the Statistics. Organizing of Data, classification of data, Graphs and Charts: Stem-and leaf diagram, Box and Whisker plots and their interpretation. Measures of Central Tendency and Dispersion: Their properties, usage, limitations and comparison. Calculations for the ungrouped and grouped data. Measures of Skewness and Kurtosis and Distribution shapes. "Probability Concepts, Addition and Multiplication rules, Bivariate frequency tables, joint and marginal probabilities, Conditional probability and independence, Bayes' rule".

Books Recommended

1. Spiegel, M.R., Schiller, J.L. and Sirinivasan, R.L. (2000) "*Probability and Statistics*", 2nd ed. Schaums Outlines Series. McGraw Hill. NY.
2. Clark, G.M and Cooke, D. (1998), "*A Basic Course in Statistics*" 4th ed, Arnold, London.
- 3.* Walpole, R.E., Myers, R.H and Myers, S.L. (1998), "*Probability and Statistics for Engineers and Scientist*" 6th edition, Prentice Hall, NY.
4. Mclave, J.T., Benson, P.G. and Snitch, T. (2005) "*Statistics for Business & Economics*" 9th ed. Prentice Hall, New Jersey.

5. Weiss, N.A.(1997), “*Introductory Statistics*” 4th ed. Addison-Wesley Pub. Company, Inc.
6. Chaudhry, S.M.and Kamal, S. (1996), “*Introduction to Statistical Theory*” Parts I & II, 6th ed, Ilmi Kitab Khana, Lahore, Pakistan.

Subject Specific Course		
Introduction to Probability Distributions	Credit Hours:3(3+0)	Course Code: SSC-1

Course Objectives:

This course is designed to introduce the students with the concepts of discrete and continuous random variables, their applications and fitting. This module aims to lay foundations in probability and distribution theory which will be built upon in later modules.

After this course students will be able to define probability via axioms and will be able to develop some of its useful properties. Students will also know about random variables and the properties of the probability used to develop distribution of practical importance.

Course Contents:

Discrete Random Variables, Probability Distribution, Mean and Variance of a discrete random variable. Bernoulli trials. Properties, applications and fitting of Binomial, Poisson, Hyper geometric, Negative Binomial and Geometric distributions. Continuous Random Variables, probability density function and its properties. Normal Distribution and its properties, Standard Normal Curve, Normal approximation to Binomial and Poisson distributions.

Books Recommended

1. Spiegel, M.R., Schiller, J.L. and Sirinivasan, R.L. (2000) “*Probability and Statistics*”, 2nd ed. Schaums Outlines Series. McGraw Hill. NY.
2. Clark, G.M. and Cooke, D. (1998), “*A Basic Course in Statistics*” 4th ed, Arnold, London.
3. * Walpole, R.E., Myers, R.H and Myers, S.L. (1998), “*Probability and Statistics for Engineers and Scientist*” 6th edition, Prentice Hall, NY.
4. Mclave, J.T., Benson, P.G. and Snitch, T. (2005) “*Statistics for Business & Economics*” 9th ed. Prentice Hall, New Jersey.
5. Weiss, N.A.(1997), “*Introductory Statistics*” 4th ed. Addison-Wesley Pub. Company, Inc.
6. Chaudhry, S.M.and Kamal, S. (1996), “*Introduction to Statistical Theory*” Parts I & II, 6th ed, Ilmi Kitab Khana, Lahore, Pakistan.

Subject Specific Course		
Basic Statistical Inference	Credit Hours:3(3+0)	Course Code: SSC-2

Course Objectives:

This course will provide knowledge about the purpose of inferential statistics. Students will be able to know about estimation, confidence intervals and hypothesis testing.

After completing this course Student will know about different estimation procedures and their inference.

Course Contents:

Distribution of sample mean and central limit theorem. Estimation: Point Estimation. Desirable Properties of a Good Estimator. Interval Estimation. Interval Estimation of population mean. Large and small sample confidence intervals for Population Mean.

Nature of Hypothesis Testing and Types of errors. Hypothesis Testing for Population Mean and variance. Inferences for Two Population Means. Large-sample inferences for Two Populations using Independent Samples. Inferences for the Mean of Two Normal Populations using Independent Samples (variances are assumed Equal/Not Equal). Inference for Two Populations Mean using Paired Samples. Inferences for Population Proportions. Confidence Intervals and hypothesis Testing for Population Proportion. Inferences for Two Populations Proportions using Independent Samples, Estimation of sample size. Chi-Square Procedure. Chi-Square Goodness-of fit Test. Chi-Square Independence Tests.

Books Recommended

1. Spiegel, M.R., Schiller, J.L. and Sirinivasan, R.L. (2000) “*Probability and Statistics*”, 2nd ed. Schaums Outlines Series. McGraw Hill. NY.
2. Clark, G.M. and Cooke, D. (1998), “*A Basic Course in Statistics*” 4th ed, Arnold, London.
3. Mclave, J.T., Benson P.G. and Snitch, T. (2005) “*Statistics for Business & Economics*” 9th Prentice Hall New Jersey.
4. * Walpole, R.E., Myers, R.H. and Myers, S.L. (1998), “*Probability and Statistics for Engineers and Scientist*” 6th edition, Prentice Hall, NY.
5. Weiss, N.A. (1997), “*Introductory Statistics*” 4th ed. Addison-Wesley Pub. Company, Inc.
6. Chaudhry, S.M. and Kamal, S. (1996), “*Introduction to Statistical Theory*” Part I, II, 6th ed, Ilmi Kitab Khana, Lahore, Pakistan.

Subject Specific Course		
Introduction to Statistical Analysis and Experimental Designs	Credit Hours:3(3+0)	Course Code: SSC-3

Course Objectives:

This course is designed to help students about the basic concepts of regression and correlation. In this course various designs are discussed and their respective differences, advantages, and disadvantages are noted.

After this course students will be able to examine how to design experiments, carry them out and analyze the data they yield.

Course Contents:

Concepts of Regression and Correlation, Simple Linear regression, Multiple linear regression, Inference regarding regression parameters, linear correlation: simple, partial and multiple correlation, Inference regarding correlation coefficient, Coefficient of determination One-Way and Two-Way Analysis of Variance Design of Experiments, Basic Principles of Design of Experiments, Description, Layout and Analysis of Completely Randomized Design, Randomized Complete Block Design and Latin Square Design, Multiple Comparisons (LSD and Duncan's test)

Recommended Books:

1. Chaudhry, S.M., and Kamal, S., (2009), *"Introduction to Statistical Theory"* Part I, II, 8th ed, Ilmi Kitab Khana, Lahore, Pakistan.
2. Clark, G. M. and Kempston, R. E. (1997), *"Introduction to the Design & Analysis of Experiment"* Arnold London.
3. Walpole, P.E., Myers R.H., Myers S.L. (2007), *"Probability and Statistics for Engineers and Scientists"*, 7th ed. Prentice Hall.
4. Weiss, N.A, (1997), *"Introductory Statistics"* 4th ed. Addison-Wesley Pub. Company, Inc.

Subject Specific Course		
Applied Statistics	Credit Hours:3(3+0)	Course Code: SSC-4

Course Objectives:

This course overview several techniques of sampling, and discuss real life problems. After this course students will acquire knowledge and skills in a domain with wide applicability and will be able to apply statistical techniques in marketing, finance, economics etc.

Course Contents:

Sampling: Need of sampling, Sample versus population, Random and non-random sampling, concepts of statistic and population parameter. Sampling techniques: Simple Random, Stratified and Systematic random sampling. Census and survey problem, ramming of questionnaire. Sampling and Non-Sampling Errors. Index numbers: construction and uses of index numbers, un-weighted index numbers (simple aggregative index, average of relative price index numbers). Weighted index numbers (Laspayer's, Paaches and Fisher's ideal index numbers). Consumer price index (CPI) and Sensitive Price Indicators. Time Series Analysis: Components of time series and their isolation. Vital Statistics: Meaning of vital statistics, registrations of Birth and death in Pakistan. Uses of vital statistics, short comings of vital statistics, rates and ratios (Sex ratio, child women ratio, birth and death ratio, population growth rate, classification of natural rates, death rates or mortality rates, crude death rate, specific death rate, infant mortality rate, case fatality rate, fertility rates, crude birth rate, specific birth rate, standardized death rate, reproduction rates, gross reproduction rate, net reproduction rate, morbidity or sickness rates, marriage rates, divorce rates etc. general; fertility rate, total fertility rate.)

Books Recommended

1. Clark, G.M. and Cooke, D. (1998), "*A Basic Course in Statistics*" 4th ed, Arnold, London.
2. * Mclave, J.T. Benson, P.G. and Snitch, T. (2005) "*Statistics for Business & Economics*" 9th Prentice Hall New Jersey.
3. Walpole, P.E. Myers, R.H., Myers S.L. (1998), "*Probability and Statistics for Engineers and Scientists*", Prentice Hall.
4. Chaudhry, S.M. and S. Kamal, (1996), "*Introduction to Statistical Theory*" Part I, II, 6th Ed, Ilmi Kitab Khana, Lahore, Pakistan.
5. * Cochran, W.G. "*Sampling Techniques*".3rd Ed.
6. * Pollard, A.H. Yousuf, F. and Pollard G.M. (1982), "*Demographic Techniques*", Pergamon Press, Sydney.

Subject Specific Course		
Probability Probability Distributions-1	Credit Hours:3(3+0)	Course Code: SSC-5

Course Objectives:

This course covers the basics of probability, expectation, and conditioning, as well as all the standard distributions of random variables both discrete and continuous.

After this course students will know about basic probability concepts.

Course Contents:

Probability as a set function. Conditional probability and Bayes' theorem. Random variables, Distribution function, Probability mass function and probability density function. Joint and conditional distributions for two and more random variables. Marginal and conditional distributions, stochastic independence. Mathematical expectation and its properties Conditional expectation, variance and moments. Probability generating function. Moment generating and characteristic functions and their properties. Relation between moments and cumulates. Probability distributions: Hyper geometric, Binomial, Multinomial, Negative Binomial, Geometric, Poisson, Normal and Lognormal distributions with moments and cumulates.

Books Recommended

1. Stirzaker, D. (1999). *"Probability and Random Variables"*. Cambridge University Press, Cambridge.
2. Stuart, A. and Ord, J. K. *Kendall's* (1998), *"Advanced Theory of Statistics"*, Vol. I, Charles Griffin, London.
3. Hirai, A.S. (1998), *"A Course in Mathematical Statistics"*, Ilmi Kutab Khana, Lahore.
4. Fridett, B. & Gray, L. (1997). *"A Modern Approach to Probability Theory"* Birkhallser, Boston.
5. Freund, J. E. (1997). *"Mathematical Statistics"*, Prentice Hall, New Jersey 6th edition.
6. * Mood, A.M, Graybill, F.A. and Boss, D.C. (1997), *"Introduction to the Theory of Statistics"*, McGraw Hill, New York.
7. Khan, M. K., (1996). *"Probability with Applications"*, Maktiba Ilmi, Lahore.
8. * Hogg, R.M. and Craig, A.T. (1995), *"Introduction to Mathematical Statistics"*. Prentice Hall, Engle wood Cliffs, New Jersey.
9. Haq, M. (1984). *Foundation of Probability and Statistics*, Tahir sons, Urdu Bazar, Karachi.

Subject Specific Course		
Design and Analysis of Experiments	Credit Hours:3(3+0)	Course Code: SSC-6

Course Objectives:

This course is designed to introduce the students about the principles of randomization, replication and stratification, and understand how they apply to practical examples.

After completing this course students will know about applied theory and methods to a variety of applications.

Course Contents:

Principles of Design of Experiments. Analysis of variance and its assumptions. Cochran theorem. Fixed, random and mixed effect models. Effect of violation of assumptions and transformations. Completely Randomized, Randomized Complete Block, Latin square, Graeco-Latin square and cross-over designs. Missing observations. Relative efficiency of designs. Estimation of mean squares and their expectations. Multiple Comparisons.

Analysis of covariance in CR, RCB designs. Estimation of missing values in analysis of covariance

Books Recommended:

1. Montgomery, D.C. (2000). “*Design and Analysis of Experiments*”, John Wiley, New York.
2. Clarke, G.M., and Kempton, R.E. (1997), “*Introduction to the Design & Analysis of Experiments*”, Edward Arnold.
3. Steel, Robert, G. D., Terrie James H., and Dickey David A. (1997). “*Principles and Procedures of Statistics: A Biometrical Approach*” 3rd Edition, McGraw Hill, New York.
4. Boniface, D.R. (1995). “*Experiment Design & Statistical Methods*”, Chapman & Hall.
5. Myers, R.H. and Montgomery, D.C. (1995). “*Response Surface Methodology; Process & Product Optimization Using Design*”, John Wiley.
6. Clarke, G.M. (1994). “*Statistics & Experimental Design*”. Edward Arnold.
7. Harold, R. L (1992). “*Analysis of Variance in Experimental Design*”. Springer Verlag:
8. Maxwell, S.E. and Delaney, H.D. (1990). “*Designing Experiments and Analysis of Data*”. *A model comparison perspective*. Belmont and Wadeson.
9. Mead, R. (1988). “*The Design of Experiments*”. Cambridge University Press, Cambridge.
10. Das, M.N. and Geri, N.C, (1986). “*Design and Analysis of Experiments*”, John Wiley, New York.
11. Gomez, K.A., and Gomez, A.A. (1984). “*Statistical Procedures for Agricultural Research*”, 2nd Edition, John Wiley, New York.
12. Hicks, C.R. (1982). “*Fundamental Concepts in Design and Analysis of Experiments*” Saunders
13. Cochran, W.G. and Cox, G.M. (1957). “*Experimental Design*”, John Wiley, New York

Subject Specific Course		
Regression Analysis	Credit Hours:3(3+0)	Course Code: SSC-7

Course Objectives:

This course will help students about a coordinated treatment of linear and generalized linear models and their application.

After completing this course student will be able to analyze residual, detect outliers. Also students will be introduced from other different types of regression models.

Course Contents:

General linear model and its assumptions, Least squares estimators, MLE, Least squares estimators, tests of hypothesis, tests of significance of a single and complete regression, tests of significance of subset of coefficients. Significance tests and confidence intervals. Test of linearity of regression. Use of extraneous information in linear regression model. Residual analysis, Detection and study of outliers. Polynomial regression, orthogonal polynomial, orthogonal regression analysis. Specification of models.

Books Recommended

1. Draper, N.R. and Smith, H. (2004).” *Applied Regression Analysis*”, John Wiley. New York.
2. Baltagi, B. H. (1999). “*Econometrics*”, 2nd Edition, Springer Varlog.
3. Gujarati, D. (1998). “*Econometrics*”, John Wiley, New York.
4. Wonnacott, T.H. and Wonnacott R.J. (1998). “*Econometrics*”, John Wiley, New -York.
5. Johnston, J. and Di. Nardo, J., (1997). “*Econometric Method*”, 4th Edition, McGraw Hill, New York.
6. Ryan, P. T. (1996) “*Modern Regression Methods*”, John Wiley and sons Inc. New York.
7. Montgomery, D.C., and Peck E.A. (1992).”*Introduction to linear Regression Analysis*”, 2nd Edition, John Wiley and sons Inc. New York.
8. Guttmann, I, (1980); “*Linear Models: An Introduction*”, John Wiley, New York.
9. Koutsoyiannis, A. (1980), “*Theory of Econometrics*”, Macmillan. N.Y.
10. Maddala, G.S. (1977). “*Econometrics*”, McGraw Hill. New York.
11. Searle, S. R. (1971), “*Linear Models*”, John Wiley, New York.

Eligibility for Admission: FA/FSc or equivalent)

Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository Writing -1	03	Expository Writing -2	03	Expository Writing -3	03	Art & Humanities (AH-2)	03
Quantitative Reasoning -1	03	Quantitative Reasoning -2	03	Art & Humanities (AH-1)	03	Arabic Language-II	03
Civilization Course-1	03	Civilization Course-2	03	Arabic Phonetic	03	History of Tafsir	03
Natural Science-1	03	Natural Science-2	03	Uloom-al-Quran	03	History of Fiqh	03
Social Sciences-1 (SS-1)	03	Social Science-2 (SS-2)	03	Arabic Language- I	03	Uloom-al-hadith	03

Subject Specific Course		
Arabic Phonetic القراءۃ والتجويد	Credit Hours:3(3+0)	Course Code: SSC-1

Objectives of the Course	<p>۱۔ طلباء کو علم تجوید و قرآن کی اہمیت سے آگاہ کرنا۔</p> <p>۲۔ طلباء کو علم تجوید و قرأت کی بنیادی قواعد و احکام سے آگاہ کرنا</p> <p>۳۔ طلباء کو عملی طور پر قرآن کریم کے صحیح نطق اور تلفظ سے آگاہ کرنا۔</p>
Outcomes	<ul style="list-style-type: none"> • طلباء علم تجوید کی اہمیت سے واقف ہو جائیں گے۔ • طلباء علم تجوید کی بنیادی قواعد پڑھیں گے۔ • طلباء قرآن کریم کے صحیح نطق اور تلفظ کا عملی مشق کریں گے۔

Course Description

Week No	Topic	Description
1	تعارف قرآن مجید	۱۔ قرآن مجید کا لغوی اور اصطلاحی مفہوم ۲۔ قرآن امتیازات مجید کی خصوصیات و
2	تعارف و اہمیت	۱۔ علم تجوید کا تعارف فضیلت اور اہمیت ۲۔ مخارج الحروف، حروف کے القاب مخارج کے اعتبار سے۔ ۳۔ صفات الحروف، صفات الازم اور غیر لازم
3	قواعد تجوید	۱۔ تقحیم اور ترقیق کے قواعد (حروف مفخمہ اور مرقمہ) ۲۔ نون ساکن اور تنوین کے قواعد (اخفاء، اظہار، انقلاب) ۳۔ میم ساکن کے احوال (ادغام، اخفاء، اظہار)

*Recommended by the Academic Council in its 3rd meeting held on December 17, 2020
approved by the Syndicate in its 36th meeting held on January 01, 2021*

4	ادغام	۱۔ ہمزہ کے احکام (قطعہ اصلیہ) ۲۔ ادغام کے قواعد اور احکام ۳۔ مد کے قواعد اور احکام (مد اصلی، مد فرعی، مد کی مقدار)
5	وقف	۱۔ وقف کے احکام و قواعد ۲۔ وقف کی صورتیں) ۳۔ رموز اسکان، روم، اشماس
6	اجراء	الناس۔ الفلق الاخلاص۔ الہب النصر الکافرون
7	اجراء	الکوتر۔ الماعون۔ القریش۔ الفیل، الہمزہ، العصر، التکاثیر
8	اجراء	القارعة، العادیات۔ الزلزال، البینة، القدر، الاعلیٰ
9	اجراء	التین، الم نشرح، الضحیٰ، الیل، الشمس، البلد
10	اجراء	الفجر، الغاشیة، الاعلیٰ، الطارق، البروج، الانشقاق
11	اجراء	المطففون، انفطار، التکویر، عبس، النزعات
12	اجراء	النباء، المرسلات، الدھر
13	اجراء	القیامۃ، المدثر، المزل
14	اجراء	الجن، النوح، المعارج
15	اجراء	الحاقہ، القلم، الملک
16	اجراء	المجادلہ، الحشر، الممتحنہ

نصابی کتب

نمبر شمار	نام مصنف	نام کتاب
1	خلاصہ تجوید	اظہار احمد تہانوی
2	فوائد مکیمہ	عبدالرحمن مکی

حوالہ جاتی کتب

1	جمال القرآن	مولانا شرف علی تہانوی
2	البرہان فی تجوید القرآن	محمد الصادق قمقاوی

Subject Specific Course		
Uloom-al-Quran علوم القرآن	Credit Hours:3(3+0)	Course Code: SSC-2

Objectives of the Course	<p>۱۔ طلباء کو علوم القرآن سے اس طرح روشناس کروانا تاکہ وہ قرآن فہمی کی منازل کو آسانی سے طے کر سکیں</p> <p>۲۔ طلباء کی مفاہیم قرآن کی سمجھ میں مدد کرنا</p> <p>۳۔ طلباء میں ایسی مہارت ، سلیقہ اور صلاحیت پیدا کرنا جس کی مدد سے وہ دور جدید کے مسائل، قرآنی تناظر میں سمجھ سکیں</p>
Outcomes	<ul style="list-style-type: none"> • طلباء قرآن کے مفہوم لغوی اور اصطلاحی سے واقف ہو جائیں گے۔ • طلباء وحی اور اس کے اقسام، مکی اور مدنی سورتوں کے مضامین اور تدوین قرآن کے مختلف مراحل سے آگاہی حاصل کریں گے۔ • طلباء اسلوب قرآن، اعجاز قرآن جیسے اہم موضوعات کو سمجھ سکیں گے۔

Course Description

Week No	Topic	Description
1	تعارف قرآن مجید	۱۔ قرآن مجید کا لغوی اور اصطلاحی مفہوم ۲۔ قرآن مجید کی خصوصیات و امتیازات
2	وحی الہی	۱۔ وحی کا مفہوم و اہمیت ۲۔ وحی کی اقسام اور کیفیات
3	تاریخ نزول قرآن	۱۔ نزول قرآن کا مفہوم ۲۔ نزول قرآن مجید: تدریج و حکمتیں ۳۔ قرآن مجید کے خصائص
4	کتابت وحی	۱۔ کتابت وحی کا تعارف ۲۔ کتابتیں وحی ۳۔ کتابت وحی کے اسالیب
5	قرآن حفاظت مجید	۱۔ حفاظت قرآن کا مفہوم ۲۔ حفاظت قرآن کے لیے اقدامات الف۔ حفظ ب۔ کتابت ج۔ عمل تواتر
6	حضرت ابوبکرؓ کے دور میں تدوین قرآن	۱۔ تدوین قرآن کی ضرورت ۲۔ تدوین قرآن کی ذمہ داری ۳۔ حفاظت قرآن کے لیے مدنی دور کے اقدامات
7	عہد عثمانی میں تدوین قرآن	۱۔ عہد عثمانی میں تدوین قرآن کے اسباب ۲۔ عہد عثمانی میں تدوین قرآن کے اسالیب ۳۔ عہد عثمانی میں تدوین قرآن کے اثرات
8	قرآن پاک کی مکی سورتیں	۱۔ مکی سورتوں کا تعارف و اہمیت ۲۔ مکی سورتوں کی شان نزول ۳۔ مکی سورتوں کے اہم مضامین
9	قرآن پاک کی مدنی سورتیں	۱۔ مدنی سورتوں کا تعارف و اہمیت ۲۔ مدنی سورتوں کی شان نزول ۳۔ مدنی سورتوں کے اہم مضامین
10	اسباب نزول	۱۔ اسباب نزول کا تعارف و اہمیت ۲۔ قرآن فہمی اور اسباب نزول ۳۔ تشریح قرآن میں اسباب نزول کی حیثیت
11	ناسخ و منسوخ	۱۔ ناسخ و منسوخ کا تعارف ۲۔ ناسخ و منسوخ کے اسباب ۳۔ ناسخ و منسوخ کا قرآن فہمی اور قرآن پاک کی تشریحی حیثیت پر اثرات
12	تفسیر القرآن کے اہم ماخذ	۱۔ تفسیر قرآن بالقرآن ۲۔ تفسیر قرآن بالحديث ۳۔ تفسیر قرآن باقوال صحابہ و تابعین ۴۔ قدیم صحف سماوی ۵۔ جاہلی ادب ۶۔ آثار و اثریات
13	اسلوب القرآن	۱۔ اسلوب القرآن کا مفہوم ۲۔ اسلوب القرآن کی اقسام ۳۔ قرآن فہمی میں اسلوب القرآن کی اہمیت

14	اعجاز القرآن	۱۔ اعجاز القرآن کا مفہوم و تعارف ۲۔ اعجاز القرآن کی مختلف جہتیں ۳۔ اعجاز القرآن کے اثرات
15	قرآن مجید اور انسانی زندگی	۱۔ قرآنی مجید اور انفرادی انسانی زندگی ۲۔ قرآن مجید اور اجتماعی انسانی زندگی ۳۔ قرآن مجید کے انسانی زندگی پر اثرات
16	قرآن مجید اور عصری مسائل	۱۔ عصری مسائل اور ان کی نوعیت عصری مسائل کے حوالے سے قرآن مجید کا منہ ۲

نصابی کتب

نمبر شمار	نام مصنف	نام کتاب
1	مولانا تقی عثمانی	علوم القرآن
2	مولانا محمد مالک کاندھلوی	منازل العرفان
3	محمد علی الصابونی	روائع البیان
4	علامہ شمس الحق افغانی	علوم القرآن
5	مصطفیٰ اعظمی	The History of The Quran Text from reveletion to compilation

حوالہ جاتی کتب

1	علامہ سیوطی	الاتقان
2	ڈاکٹر محمد حسین الذہبی	التفسیر والمفسرون
3	عبد الصمد صارم	تاریخ قرآن
4	مولانا گوہر رحمن	علوم القرآن
5	مناظر احسن گیلانی	تاریخ قرآن

Subject Specific Course		
Arabic Language– I	Credit Hours:3(3+0)	Course Code: SSC-3

Objectives of the Course	<p>۱۔ طلباء کو عربی زبان کی علوم اسلامیہ میں اہمیت سے آگاہ کرنا</p> <p>۲۔ طلباء کو علم صرف اور نحو کے بنیادی قواعد سے آگاہ کرنا تاکہ اسلامی علوم سے کما حقہ استفادہ کیا جا سکے</p> <p>۳۔ طلباء کو علم صرف کے بنیادی اصولوں سے آگاہ کرنا</p>
Outcomes	<ul style="list-style-type: none"> • طلباء عربی زبان کی اہمیت سے واضح ہو جائیں گے۔ • طلباء عربی زبان کے بنیادی قواعد سے آگاہ ہو جائیں گے۔ • علم صرف کے ذریعے فعل واسم کے متعلقات سے واقفیت حاصل کریں گے۔

Course Description

Week.No	Topic	Description
1	عربی زبان کا تعارف و اہمیت	۱۔ عربی زبان کا آغاز و ارتقاء ۲۔ عربی زبان کی اہمیت ۳۔ علوم اسلامیہ کے فہم میں عربی زبان کا کردار
2	ماضی اور مضارع	۱۔ فعل ماضی اور مضارع کا تعارف ۲۔ فعل ماضی اور مضارع کی اقسام اور گردانیں ۳۔ فعل ماضی اور مضارع کے بنیادی صرفی قواعد
3	فعل امر و نہی	۱۔ فعل امر و نہی کا تعارف ۲۔ فعل امر و نہی کی اقسام اور گردانیں ۳۔ فعل امر و نہی کے بنیادی صرفی قواعد
4	اسماء - 1	۱۔ اسم فاعل کا تعارف اور صرفی قواعد ۲۔ اسم مفعول کا تعارف اور صرفی قواعد
5	اسماء - 2	۱۔ اسم تفضیل کا تعارف اور صرفی قواعد ۲۔ اسم ظرف (زمان و مکان) کا تعارف اور صرفی قواعد ۳۔ اسم آلہ کا تعارف اور صرفی قواعد
6	اسماء - 3	۱۔ اسم اشارہ (قریب اور بعید) ۲۔ اسم موصول اور جملہ موصولہ کا تعارف
7	معرب و مبنی	۱۔ اسم معرب کا تعارف اور اس کی اقسام ۲۔ اسماء مبنی کا تعارف اور ان کی اقسام
8	حروف	۱۔ حروف نداء ۲۔ حروف نواصب مضارع ۳۔ حروف جواز مضارع
9	ثلاثی مجرد	۱۔ فعل ثلاثی مجرد کا تعارف ۲۔ فعل ثلاثی مجرد کے ابواب
10	ثلاثی مزید فیہ (۱)	۱۔ فعل ثلاثی مزید فیہ کا تعارف ۲۔ فعل ثلاثی مزید فیہ کے ابواب
11	ثلاثی مزید فیہ (۲)	ثلاثی مزید فیہ کے ابواب کا تفصیلی مطالعہ
12	ہفت اقسام (۱)	۱۔ صحیح ۲۔ مثال (واوی-یائی) ۳۔ مضاعف ۴۔ لفیف (مفروق اور مقرون)
13	ہفت اقسام (۲)	۱۔ ناقص (واوی-یائی) ۲۔ مہموز (الفاء والعین واللام) ۳۔ اجوف
14	معلم الانشاء سے منتخب مطالعہ	استاد تفصیلات خود طے کرے اور ان کو پڑھانے میں اطلاقی انداز اختیار کیا جائے۔
15	معلم الانشاء سے منتخب مطالعہ	استاد تفصیلات خود طے کرے اور ان کو پڑھانے میں اطلاقی انداز اختیار کیا جائے۔

16	Presentations	Presentations
نصابی کتب		
نام کتاب	نام مصنف	نمبر شمار
عربی کا معلم (چاروں حصے)	عبدالستار خان	1
تمرین صرف	معین اللہ ندوی	2
تمرین النحو	محمد مصطفیٰ ندوی	3
معلم الانشاء	مولانا عبدالماجد ندوی	4
حوالہ جاتی کتب		
نام کتاب	نام مصنف	نمبر شمار
النحو الواضح	علی جارم	1
اساس عربی	نعیم الرحمن	2
مبادئ العربية في الصرف و النحو	رشید الشراطوی	3
کتاب النحو	عبدالرحمن امرتسری	4
تمرین النحو	محمد مصطفیٰ ندوی	5
قواعد القرآن	عبدالرحمن طاہر	6

Subject Specific Course		
Arabic Language– II	Credit Hours:3(3+0)	Course Code: SSC-4
Objectives of Course	۱۔ عربی زبان کو صحیح استعمال کرنے کے لیے صرف و نحو کی مہارت پیدا کرنا ۲۔ عربی شعر کو پڑھنے اور سمجھنے کی صلاحیت پیدا کرنا ۳۔ طلباء میں عام عربی نصوص کو سمجھنے کی صلاحیت کو بہتر کرنا	

- Outcomes**
- طلباء علم النحو کا تعارف، اہمیت اور مبادیات سے واقف ہو جائیں گے۔
 - طلباء عربی گرامر صحیح جملہ بولنے اور تحریر کے قابل ہو جائیں گے۔
 - طلباء میں عربی نصوص اور دیگر ضروری دستاویزات پڑھنے اور سمجھنے کی صلاحیت پیدا ہو جائیگی۔

Week No.	Title	Description
1	علم النحو (۱)	۱۔ علم النحو کا تعارف ۲۔ علم النحو کی اہمیت ۳۔ علم النحو کی مبادیات
2	علم النحو (۲)	جملہ اسمیہ I (۱۔ علم النحو کے متعلق قواعد ۲۔ جملہ کی اقسام اور فعلیہ) (نواسخ جملہ اسمیہ اور فعلیہ II (۳۔ جملہ کی اقسام
3	مبنی کلمات	۱۔ مبنی کلمات کا تعارف ۲۔ مبنی کلمات کی اقسام ۳۔ مبنی کلمات سے متعلق قواعد
4	اسماء	۱۔ اسماء موصولہ ۲۔ اسماء اشارہ ۳۔ اسماء افعال
5	معرب کلمات	۱۔ معرب کلمات کا تعارف ۲۔ معرب کلمات کی اقسام ۳۔ معرب کلمات کے متعلق قواعد
6	مرفوعات	مرفوعات
7	منصوبات	منصوبات
8	مجرورات	مجرورات
9	مرکبات	۱۔ مرکب ناقص اور اقسام ۲۔ مرکب تام (جملہ اسمیہ اور فعلیہ)
10	حروف عاملہ	۱۔ حروف استفہام ۲۔ حروف ناصبہ ۳۔ حروف جازمہ
11	مطالعہ نص (۱)	معلم الانشاء (الجزء الاول) میں سے منتخب مطالعہ
12	مطالعہ نص (۲)	معلم الانشاء (الجزء الثاني) میں سے منتخب مطالعہ
13	مطالعہ نصوص (۳)	قصص النبیین از مولانا ابوالحسن علی ندوی
14	مطالعہ نصوص (۴)	قصص النبیین از مولانا ابوالحسن علی ندوی
15	Presentations	Presentations
16	Presentations	Presentations

نصابی کتب

نمبر شمار	نام مصنف	نام کتاب
1	عبدالستار خان	عربی کا معلم (چاروں حصے)
2	معین اللہ ندوی	تمرین صرف
3	محمد مصطفیٰ ندوی	تمرین النحو
4	مولانا عبدالماجد ندوی	معلم الانشاء

حواله جاتى كتب

نمبر شمار	نام مصنف	نام كتاب
1	على جارم	النحو الواضح
2	نعيم الرحمن	اساس عربى
3	رشيد الشرطوتى	مبادئ العربية فى الصرف و النحو
4	عبدالرحمن امرتسرى	كتاب النحو
5	محمد مصطفى ندوى	تمرين النحو
6	عبدالرحمن طاهر	قواعد القرآن
7	جامعة الملك السعود، رياض	اللغة العربية لغير الناطقين بها

Subject Specific Course		
History of Tafsir	Credit Hours:3(3+0)	Course Code: SSC-5

Objectives of the Course

- ۱۔ طلباء کو تفسیر کے مفہوم اور اس کی اہمیت سے آگاہ کرنا ۲۔ تفسیر کی مختلف اقسام اور اسالیب سے آگاہ کرنا
- ۳۔ تاریخ تفسیر کے مختلف ادوار کا مطالعہ کروانا ۴۔ مختلف اسالیب کی نمائندہ تفاسیر کا مطالعہ کروانا

Outcomes

- طلباء علم تفسیر کی تعریف اور اہمیت سے آگاہ ہو جائیں گے۔
- طلباء مختلف تفاسیر کے اقسام، اسالیب اور ان کے مولفین کے مناہج سے واقف ہو جائیں گے۔

Course Description

Week No.	Title	Description
1	علم تفسیر کا تعارف	۱۔ تفسیر کا لغوی و اصطلاحی مفہوم ۲۔ تفسیر و تاویل میں فرق
2	علم تفسیر کی اہمیت	۱۔ علم تفسیر کی قرآن فہمی میں اہمیت ۲۔ علم تفسیر کی قانون سازی میں اہمیت ۳۔ دینی علوم میں علم تفسیر کا مقام
3	I تفسیر کی اقسام	۱۔ تفسیر بالمأثور کا تعارف ۲۔ تفسیر بالمأثور کی اقسام ۳۔ تفسیر بالمأثور کے اسالیب اور درجات
4	II تفسیر کی اقسام	۱۔ تفسیر بالرأی کا مفہوم ۲۔ تفسیر بالرأی کی اقسام و شرائط ۳۔ تفسیر بالرأی کی حجیت کے بارے میں مفسرین کی آراء
5	تفسیر بالمأثور کی نمائندہ کتب تفسیر	۱۔ تفسیر بالمأثور کی ابتدائی کتب ۲۔ تفسیر بالمأثور کی قرون وسطیٰ میں کتب ۳۔ تفسیر بالمأثور کی معاصر کتب
6	تفسیر بالرأی کی نمائندہ کتب	۱۔ تفسیر بالرأی کی ابتدائی کتب ۲۔ تفسیر بالرأی کی قرون وسطیٰ میں کتب ۳۔ تفسیر بالرأی کی معاصر کتب
7	علم تفسیر کا ارتقاء	۱۔ عہد نبوی میں علم تفسیر ۲۔ دور صحابہ میں علم تفسیر ۳۔ تابعین اور تبع تابعین کے دور میں علم تفسیر
8	تفسیری رجحانات (۱)	۱۔ فقہی اسلوب ۲۔ سائنسی اسلوب ۳۔ فلسفیانہ اسلوب
9	تفسیری رجحانات (۲)	۱۔ ادبی تفاسیر ۲۔ بلاعی تفاسیر ۳۔ اشاری تفاسیر
10	تفسیری رجحانات (۳)	۱۔ دعوتی تفسیر ۲۔ اجتماعی تفسیر ۳۔ کلامی تفسیر ۴۔ الحادی و باطنی تفسیر ۵۔ موضوعی تفسیر
11	علم تفسیر میں علماء برصغیر کی خدمات (۱)	۱۔ شاہ ولی اللہ کی خدمات ۲۔ قاضی ثناء اللہ پانی پتی کی خدمات ۳۔ ابوالکلام آزاد کی خدمات ۴۔ عبد الحق حقانی کی خدمات
12	علم تفسیر میں علماء برصغیر کی خدمات (۲)	۱۔ فراہی مکتب فکر ۲۔ حسین علی (میانوالی) مکتب فکر
13	علم تفسیر میں علماء برصغیر کی خدمات (۳)	۱۔ علامہ شبیر احمد عثمانی کی خدمات ۲۔ مولانا اشرف علی تھانوی کی خدمات ۳۔ مفتی محمد شفیع کی خدمات ۴۔ مولانا محمد ادریس کاندھلوی کی خدمات

14	علم تفسیر میں علماء برصغیر کی خدمات (۴)	۱۔ مولاناسید ابو الاعلیٰ مودودی کی خدمات ۲۔ پیر محمد کرم شاہ الازہری کی خدمات ۳۔ علامہ غلام رسول سعیدی کی خدمات
15	Presentations	Presentations
16	Presentations	Presentations

نصابی کتب

نمبر شمار	نام مؤلف	نام کتاب
1	جلال الدین السيوطی	الإتقان في علوم القرآن
2	صبحی صالح	علوم القرآن
3	محمد حسین ذہبی	والمفسرون التفسیر
4	شاہ ولی اللہ	الفوز الكبير في أصول التفسیر
5	غلام احمد حریری	تاریخ تفسیر ومفسرون
6	محمد تقی عثمانی	علوم القرآن

حوالہ جاتی کتب

نمبر شمار	نام مؤلف	نام کتاب
1	خالد عبدالرحمن العک	أصول التفسیر
2	محمد سلیمان کافجی	التیسیر في أصول التفسیر
3	ابن تیمیہ	مقدمة في أصول التفسیر
5	ڈاکٹر صاحبزادہ ساجد الرحمن (مرتب)	سہ ماہی فکر و نظر اسلام آباد کی اشاعت خاص۔ بر صغیر میں مطالعہ قرآن حکیم

Subject Specific Course		
History of Fiqh	Credit Hours:3(3+0)	Course Code: SSC-6
Objectives of the Course	۱۔ طلباء کو فقہ اسلامی کے مفہوم اور ارتقائی مراحل سے آگاہ کرنا ۲۔ فقہ کی تدوین میں فقہاء کرام کی خدمات کو واضح کرنا ۳۔ موجودہ دور میں فقہ کی اہمیت کی وضاحت کرنا	
Outcomes	<ul style="list-style-type: none"> • طلباء فقہ اسلامی کی ابتدا، ارتقاء اور تدوین کے مختلف مراحل سے روشناس ہونگے۔ • طلباء فقہ اسلامی کے بنیادی مصادر و ماخذ سے استنباط احکام میں درجہ بندی کے اصول و ضوابط کی معرفت حاصل کریں گے۔ • طلباء میں فقہی مذاہب اور بالخصوص مذاہب اربعہ کے بانیوں اور انکی کاوشوں سے آگاہ ہو جائیں گے۔ 	

Course Description

Week No.	Title	Description
1	فقہ : مفہوم اور خصوصیات	۱۔ لغوی اور عمومی مفہوم ۲۔ بطور اصطلاح مفہوم کا ارتقاء ۳۔ خصوصیات
2	فقہ سے متعلقہ بنیادی اصطلاحات	۱۔ شریعہ ، اصول الفقہ، قواعد فقہیہ، فروق، سیاسہ شرعیہ، خلاف
3	ماقبل اسلامی دور، قانون کا جائزہ	رومن اور اسلامی قوانین کا تقابلی
4	فقہ اسلامی کا پہلا دور (عہد نبوی) اور اس کی خصوصیات	۱۔ قرآن : فقہی تعریف، احکام ۲۔ سنۃ: فقہی حیثیت ۳۔ اجتہاد: مفہوم ، حیثیت
5	فقہ اسلامی کا دوسرا دور (عہد خلافت راشدہ) اور اس کی خصوصیات	۱۔ قرآن : تدوین ۲۔ سنۃ: روایت، استدلال ۳۔ اجتہاد: انفرادی و اجتماعی
6	فقہ اسلامی کا تیسرا دور (عہد بنی امیہ) اور اس کی خصوصیات	۱۔ سنۃ : روایت، اقسام ۲۔ مکاتب فقہ کا ظہور
7	فقہ اسلامی کا چوتھا دور (عہد بنی عباس) اور اس کی خصوصیات	۱۔ تدوین، علوم ۲۔ مکاتب فقہ کا ارتقاء
8	حنفی مکتب فقہ کا تعارف	۱۔ بانی، معروف فقہاء ، کتب ۲۔ نظریہ قانون اور اصول
9	مالکی مکتب فقہ کا تعارف	۱۔ بانی ، معروف فقہاء ، کتب ۲۔ نظریہ قانون اور اصول
10	شافعی مکتب فقہ کا تعارف	۱۔ بانی ، معروف فقہاء ، کتب ۲۔ نظریہ قانون اور اصول
11	حنبل مکتب فقہ کا تعارف	۱۔ بانی، معروف فقہاء ، کتب ۲۔ نظریہ قانون اور اصول
12	جعفری اور زیدی مکاتب فقہ کا تعارف	۱۔ بانی، معروف فقہاء ، کتب ۲۔ نظریہ ہائے قانون اور اصول
13	غیر مروجہ مکاتب فقہ کا تعارف	۱۔ اوزاعی ، ثوری ، طبری

14	فقہ اسلامی کے بقیہ ادوار	۱۔ قانونی نظام کا استحکام ۲۔ تدوین قوانین ۳۔ مابعد نو آبادیاتی نظام
15	پاکستان میں اسلامی قانون سازی کی تاریخ	۱۔ قرارداد مقاصد ۲۔ دستور ۱۹۷۳ء مع متعلقہ ترامیم ۳۔ وفاقی شرعی عدالت، اسلامی نظریاتی کونسل کا تعارف
16	Presentations	Presentations

نصابی کتب

نمبر شمار	نام مؤلف	نام کتاب
1	محمد تقی امینی	فقہ اسلامی کا تاریخی پس منظر
2	محمد الخضر می	تاریخ التشريع الاسلامي
3	عبدالکریم زیدان	المدخل لدراسة التشريع الإسلامي
4	احمد حسن	The Early Development of Islamic Jurisprudence
5	حسن الخطیب	فقہ الاسلام

حوالہ جاتی کتب

نمبر شمار	نام مؤلف	نام کتاب
1	صبحی محمصانی	فلسفۃ التشريع الإسلامي
2	مناظر احسن گیلانی	مقدمہ تدوین فقہ
3	محمد علی السائس	تاریخ الفقہ الإسلامي
4	صوفی حسن ابو طالب	بین التشريع الإسلامي والقانون الروماني
5	ابو زھرہ	۱۔ ابوحنیفہ ۲۔ مالک ۳۔ الشافعی ۴۔ احمد بن حنبل ۵۔ جعفر الصادق ۶۔ زید بن علی
6	قاری محمد طیب	اجتہاد و تقلید

Objectives of the Course	۱۔ طلباء کو علوم الحدیث سے متعارف کروانا ۲۔ اصول حدیث کے مفہوم ، اقسام اور اہمیت سے آگاہ کرنا ۳۔ کتب حدیث کی اقسام سے متعارف کروانا ۴۔ علم حدیث کے دوسرے علوم پر اثرات سے آگاہ کرنا
Outcomes	<ul style="list-style-type: none"> • طلباء علم حدیث اور سنت سے روشناس ہو جائیں گے۔ • طلباء کتب حدیث اور ان کے مصنفین کی کاوشوں سے آگاہ ہو جائیں گے۔ • طلباء میں سند ، متن اور اس کے اعتبار سے تقسیم احادیث سے واقفیت حاصل کریں گے۔

Subject Specific Course		
Uloom-al-hadith	Credit Hours:3(3+0)	Course Code: SSC-7

نصابی کتب

نمبر شمار	نام مؤلف	نام کتاب
1	علامہ ابن حجر عسقلانی	شرح نخبة الفكر
2	ڈاکٹر خالد علوی	اصول الحديث. مصطلحات و علوم (دونوں جلدیں)
3	ڈاکٹر صبحی صالح	علوم الحديث
4	ڈاکٹر سہیل حسن	معجم اصطلاحات حديث
5	ڈاکٹر محمود الطحان	تيسير المصطلح الحديث

حوالہ جاتی کتب

Week No	Title	Description
1	علوم الحديث کا تعارف	۱۔ علوم الحديث کا مفہوم ۲۔ علوم الحديث پر بنیادی کتب
2	حديث کی اقسام	۱۔ قولی ۲۔ فعلی ۳۔ تقریری
3	اصول حديث (۱)	۱۔ روایت حدیث کا تعارف ۲۔ روایت حدیث کے اصول و ضوابط ۳۔ روایت حدیث کی اقسام (۱) روایت باللفظ (۲) روایت بالمعنی
4	اصول حديث (۲)	۱۔ سند کے اعتبار سے حدیث کی اقسام ۲۔ متن کے اعتبار سے حدیث کی اقسام ۳۔ صحت کے اعتبار سے حدیث کی اقسام
5	درایت حدیث	۱۔ درایت حدیث کا مفہوم و معانی ۲۔ درایت حدیث کے اصول ۳۔ امثلة الحديث
6	اخذ و تحمل حدیث (۱)	۱۔ اخذ حدیث بذریعہ سماع ۲۔ اخذ حدیث بذریعہ قراءۃ علی الشیخ ۳۔ اخذ حدیث بذریعہ کتابۃ
7	اخذ و تحمل حدیث (۲)	۱۔ الاجازۃ ۲۔ المناولۃ ۳۔ الاعلام ۴۔ الوصیۃ
8	ضبط حدیث و شروط راوی	۱۔ ضبط بالصد ۲۔ ضبط بالکتابۃ ۳۔ شروط راوی حدیث: (اسلام، تکلیف، ضبط، عدالت)
9	طبقات رواة حدیث	۱۔ صحابہ کرامؓ ۲۔ تابعین ۳۔ تبع تابعین ۴۔ آخرین
10	علوم الحديث کی انواع (۱)	۱۔ علم جرح و تعدیل ۲۔ علم مختلف الحديث ۳۔ علم اسماء الرجال
11	علوم حدیث کی انواع (۲)	۱۔ علل الحديث ۲۔ غریب الحديث ۳۔ ناسخ و منسوخ
12	علوم حدیث کی انواع (۳)	۱۔ تعارض الحديث ۲۔ اسباب ورود حدیث
13	کتب حدیث کی اقسام (۱)	۱۔ الجوامع ۲۔ السنن ۳۔ المسانید ۴۔ المعاجم ۵۔ مصنفات ۶۔ اربعین ۷۔ جز ۸۔ صحائف
	نام کتاب	نام مؤلف
	الرفع والتکمیل فی الجرح والتعدیل	محمد عبدالحی لکھنوی
		نمبر شمار
		1

14	کتاب حدیث کی اقسام (۲)	۲- المستدرک ۳- کتاب التخریج ۱- کتاب الجمع 7- کتاب 6- کتاب العلل 5- کتاب الضعفاء 4- کتاب الفهارس الثقات
15	علم حدیث کے دوسرے علوم پر اثرات	۱- علوم اسلامیہ کی نشوونما میں علم حدیث کا اثر ۲- علم الادب پر علم حدیث کے اثرات ۳- علم تاریخ کی نشوونما پر علم حدیث کے اثرات
16	Presentations	Presentations
	أصول الحديث، علومه ومصطلحه	محمد العجاج الخطيب 2
	كتاب معرفة علوم الحديث	امام حاكم 3
	الحديث والمحدثون	محمد ابو زهره 4
	الكفاية في علم الرواية	خطيب بغدادی 5

Scheme of Studies for Associate Degree Program, 2020 and onward

Eligibility for Admission: FA/FSc or equivalent)

Semester-wise breakup:

Semester-I	Cr.Hrs	Semester-II	Cr.Hrs	Semester-III	Cr.Hrs	Semester-IV	Cr.Hrs
Expository Writing -1	03	Expository Writing -2	03	Expository Writing -3	03	Art & Humanities (AH-2) تاریخ اسلام	03
شماری/ریاضی کمپیوٹر اور / ات سافٹ ویئر (QR-1)	03	شماریات/ریاضی کمپیوٹر اور / سافٹ ویئر (QR-2)	03	Art & Humanities (AH-1) عربی / فارسی	03	شعری اصناف: تعارف و تفہیم (حصہ دوم)	03
Civilization Course-1	03	Civilization Course-2	03	اردو زبان تشکیل و ارتقاء	03	نثری اصناف: تعارف و تفہیم (حصہ دوم)	03
Natural Science-1	03	Natural Science-2	03	شعری اصناف: تعارف و تفہیم (حصہ اول)	03	اردو میں مطالعہ اقبال کی روایت	03
Social Sciences-1 (SS-1) معاشریات	03	عمرانیات (SS-2)	03	نثری اصناف: تعارف و تفہیم (حصہ اول)	03	تحریر و انشاء (عملی تربیت) (حصہ اول)	03

Subject Specific Course		
اردو زبان تشکیل و ارتقاء		Credit Hours:3(3+0) Course Code: SSC-1

- 1- زبان کیا ہے؟ زبان اور بولی کا فرق
 - 2- برصغیر کی زبانوں کے خاندان اور اردو کا خاندان (دراوڑی اور ہند آریائی)
 - 3- اردو کے مختلف نام اور ان کی وجہ تسمیہ (ہندی، ہندوی، ہندوستانی، ریختہ، اردو)
 - 4- اردو زبان کی تشکیل کے نظریات (حافظ محمود شیرانی اور مسعود حسین خان کے نظریات کا تعارف)
 - 5- اردو زبان کے ارتقا میں مسلمانوں کا حصہ (آغاز تا 1800ء)
 - 6- اردو اور تحریک پاکستان (اردو ہندی تنازع کے پس منظر میں)
 - 7- اردو اور پاکستانی زبانوں کا تعلق (کسی ایک پاکستانی زبان کے خصوصی حوالے سے)
- مجوزہ کتب:**
- پنجاب میں اردو حافظ محمود شیرانی مقالات شیرانی ڈاکٹر مظہر محمود شیرانی
- ہندوستانی لسانیات ڈاکٹر محی الدین قادری زور اردو زبان کے ارتقا میں صوفیائے کرام کا کام ڈاکٹر مولوی عبدالحق
- مقدمہ تاریخ زبان اردو پروفیسر مسعود حسین خان اردو لسانیات کا مختصر خاکہ سید احتشام حسین
- اردو کی لسانی تشکیل مرزا خلیل احمد بیگ خلیل صدیقی زبان کیا ہے؟
- ڈاکٹر فرمان فتح پوری شمس الرحمن فاروقی ہندی اردو تنازع اردو کا ابتدائی زمانہ

Recommended by the Academic Council in its 3rd meeting held on December 17, 2020
approved by the Syndicate in its 36th meeting held on January 01, 2021

Subject Specific Course		
شعری اصناف: تعارف و تفہیم (حصہ اول)	Credit Hours:3(3+0)	Course Code: SSC-2

پابند نظم:	نظیر اکبر آبادی	الطاف حسین حالی علامہ محمد اقبال فیض احمد فیض (ایک ایک نظم یا اس کا اقتباس)
آزاد نظم:	ن-م-راشد میرا جی مجید امجد منیر نیازی فہمیدہ ریاض	(ایک ایک نظم یا اس کا اقتباس)
گیت:	حفیظ جالندھری (ایک گیت)	
قطعہ:	اکبر الہ آبادی (تین قطعات)	
رباعی:	جوش ملیح آبادی (تین رباعیات)	
دوبا:	الیاس عشقی (پانچ دوہے)	
مجوزہ کتب:		
اردو شاعری کا فنی ارتقا	ڈاکٹر فرمان فتح پوری	نظم جدید کی کروٹیں ڈاکٹر وزیر
آغا		
اردو شاعری کا مزاج	ڈاکٹر وزیر آغا	ادبی اصناف
اردو میں نظم معرا اور آزاد نظم	ڈاکٹر حنیف کیفی	جدید اردو نظم: نظریہ و عمل
احمد صدیقی		
اردو میں قطعہ نگاری	ڈاکٹر خواجہ محمد زکریا	اردو رباعی
پوری		
اصناف ادب	ڈاکٹر رفیع الدین ہاشمی	تکوین
پاکستان میں اردو دوہے کی روایت	کنول ظہیر	عرش صدیقی

Subject Specific Course		
نثری اصناف: تعارف و تفہیم (حصہ اول)	Credit Hours:3(3+0)	Course Code: SSC-3

داستان: میر امن (باغ و بہار سے انتخاب)
 ناول: نذیر احمد (توبۃ النصوح سے انتخاب) (مرزا ہادی رسوا (امراؤ جان ادا سے انتخاب) قرۃ العین حیدر (چاندنی بیگم سے انتخاب)

افسانہ: پریم چند سعادت حسن منٹو غلام عباس احمد ندیم قاسمی انتظار حسین (ایک ایک افسانہ)
 ڈرامہ: خواجہ معین الدین (تعلیم بالغاں سے انتخاب) (اشفاق احمد (قرۃ العین سے انتخاب)
مجوزہ کتب:

اردو داستان کا تحقیقی و تنقیدی مطالعہ ڈاکٹر سہیل بخاری
 گیان چند جین
 اردو ناول کی تنقیدی تاریخ ڈاکٹر احسن فاروقی
 اردو کی نثری داستانیں ڈاکٹر مولوی نذیر احمد۔ احوال و آثار

ڈاکٹر افتخار احمد صدیقی
 رُسا: ایک مطالعہ ڈاکٹر میمونہ انصاری
 قرۃ العین حیدر: ایک مطالعہ

مرتبہ: ڈاکٹر ارتضیٰ کریم
 اردو افسانہ: روایت و مسائل مرتبہ: ڈاکٹر گوپی چند نارنگ
 اردو افسانہ: ایک صدی کا قصہ ڈاکٹر انوار احمد
 اردو افسانہ اور ساطیر ڈاکٹر قاصی عابد
 مرتبہ: ڈاکٹر ارتضیٰ کریم
 امتیاز علی تاج: زندگی اور فن ڈاکٹر سلیم ملک
 مرتبہ: ایم خالد فیاض
 منٹو: ایک مطالعہ وارث علوی
 مشرف احمد
 احمد ندیم قاسمی: شاعر اور افسانہ نگار فتح محمد ملک
 خواجہ معین الدین اور تعلیم بالغاں ڈاکٹر محمد فخر الحق نوری
 خواجہ معین الدین کے ڈرامے مرتبہ: ڈاکٹر انور احمد، ڈاکٹر روبینہ ترین
 ڈرامہ: منزل بہ منزل خاطر غزنوی
 اردو افسانے کا فن اور پریم چند کے افسانے ڈاکٹر محمد احسان الحق

Subject Specific Course			
شعری اصناف: تعارف و تفہیم (حصہ دوم)		Credit Hours:3(3+0)	Course Code: SSC-4
<p>پابند نظم: نظیر اکبر آبادی الطاف حسین حالی علامہ محمد اقبال فیض احمد فیض (ایک ایک نظم یا اس کا اقتباس) آزاد نظم: ن-م-راشد میرا جی مجید امجد منیر نیازی فہمیدہ ریاض (ایک ایک نظم یا اس کا اقتباس) گیت: حفیظ جالندھری (ایک گیت) قطعہ: اکبر الہ آبادی (تین قطعات) رباعی: جوش ملیح آبادی (تین رباعیات) دوبہ: الیاس عشقی (پانچ دوہے)</p>			
مجوزہ کتب:			
اردو شاعری کا فنی ارتقا	ڈاکٹر فرمان فتح پوری	نظم جدید کی کروٹیں	ڈاکٹر وزیر آغا
اردو شاعری کا مزاج	ڈاکٹر وزیر آغا	ادبی اصناف	ڈاکٹر گیان چند
اردو میں نظم معرا اور آزاد نظم	ڈاکٹر حنیف کیفی	جدید اردو نظم: نظریہ و عمل	عقیل احمد
اردو میں قطعہ نگاری	ڈاکٹر خواجہ محمد زکریا	اردو رباعی	ڈاکٹر فرمان فتح
پوری			
اصناف ادب	ڈاکٹر رفیع الدین ہاشمی	تکوین	عرش صدیقی
پاکستان میں اردو دوہے کی روایت	کنول ظہیر		

Subject Specific Course		
نثری اصناف: تعارف و تفہیم (حصہ دوم)	Credit Hours:3(3+0)	Course Code: SSC-5

آپ بیتی: قدرت اللہ شہاب (شہاب نامہ سے انتخاب)
سوانح عمری: جسٹس (ر) جاوید اقبال (زندہ رود سے اقتباس)
خاکہ: اسلم فرخی (آنگن میں ستارے سے ایک خاکہ)
سفر نامہ: ابن انشا (چلتے ہو تو چین کو چلیے سے انتخاب)
(انتخاب)
مضمون /انشائیہ: سیر سید احمد خان، محمد حسین آزاد، ڈاکٹر وزیر آغا (ایک ایک نثر پارہ) (متن کا انتخاب
جامعات خود کریں گی)

مجوزہ کتب:

اردو نثر کا فنی ارتقا ڈاکٹر فرمان فتح پوری
سید
اردو میں انشائیہ نگاری ڈاکٹر بشیر سیفی
سیفی
اردو میں سوانح ادب ڈاکٹر عمر رضا
اردو ادب میں سفر نامہ ڈاکٹر انور
خاکہ نگاری-فن و تنقید ڈاکٹر بشیر
رسال نقوش ، لاہور آپ بیتی

Subject Specific Course		
اردو میں مطالعہ اقبال کی روایت	Credit Hours:3(3+0)	Course Code: SSC-6

- الف۔ اقبالیات: تجزیاتی اور تاریخی مطالعے
- 1۔ خلیفہ عبدالحکیم۔ فکر اقبال
 - 2۔ عزیز احمد۔ اقبال نئی تشکیل
 - 3۔ ڈاکٹر منظور احمد۔ اقبال شناسی
- ب۔ اقبالیات: فنی و اسلوبیاتی مطالعے
- 1۔ ڈاکٹر یوسف حسین خان۔ روح اقبال
 - 2۔ سید عابد علی عابد۔ شعر اقبال
 - ج۔ اقبال کی سوانح عمریوں اور کلام سے متعلق تحقیق
 - 1۔ فقیر سید وحید الدین (روزگار فقیر)
 - 2۔ جسٹس جاوید اقبال (زندہ رود)
 - 3۔ ڈاکٹر افتخار احمد صدیقی (عروج اقبال)
 - د۔ اقبالیات: کلام اقبال کی شرحیں
 - 1۔ غلام رسول مہر (مطالب)
 - 2۔ یوسف سلیم چشتی (شرحیں)
 - ه۔ خطبات اقبال: تجزیاتی مطالعہ
 - 1۔ محمد سہیل عمر (خطبات اقبال: نیا تناظر)
 - و۔ بھارت اور دیگر ممالک میں مطالعہ اقبال کی روایت: اجمالی جائزہ
- مجوزہ کتب:**
- | | | | |
|-------------------------------------|-------------------|--|--------------|
| مئے لالہ فام | ڈاکٹر جاوید اقبال | اقبال-ایک مطالعہ | جابر علی سید |
| تاریخ ادب اردو | رام بابو سکسینہ | اردو کی ادبی تاریخیں | گیان چند جین |
| اردو ادب کی مختصر ترین تاریخ | | ڈاکٹر سلیم اختر | |
| اردو شاعری کا سیاسی و سماجی پس منظر | | ڈاکٹر غلام حسین ذوالفقار | |
| ادبی تاریخ نویسی | | مرتبہ: ڈاکٹر سید عامر سہیل، نسیم عباس احمر | |
| ادبی تاریخیں: نظری مباحث | | سلمان احمد | |

Subject Specific Course		
Credit Hours:3(3+0)	Course Code: SSC-7	تحریر و انشا (عملی تربیت) (حصہ اول)
1 - مضمون نویسی (علمی، ادبی، عمومی)		
2- تبصرہ و تجزیہ (شامل نصاب تخلیقات)		
3- مراسلت / درخواست		
4- تخلیقی نثر (مکالمہ، کہانی، انشائیہ، ڈراما، فکاہیہ،		
5- انگریزی سے اردو میں ترجمہ / کسی پاکستانی زبان سے اردو میں ترجمہ		
مجموعہ کتب:		
ادبی اصناف	ڈاکٹر گیان چند	دفتری مراسلت
فن ترجمہ کاری	مرتبہ: ڈاکٹر صوبیہ سلیم، صفدر رشید	مقتدرہ قومی زبان کی مطبوعات
مرتبہ: ڈاکٹر نثار احمد قریشی		ترجمہ: فن اور روایت

Subject Specific Course		
کمپیوٹر اور سافٹ ویئر	Credit Hours:3(3+0)	Course Code: QR-

الف۔ کمپیوٹر اور سافٹ ویئر

- 1- تعارف، تاریخ، کمپیوٹر کی اقسام 2- سافٹ ویئر، تعارف اور اقسام
- 3- ڈیٹا پر اسیس کرنا
- 4- اندرونی و بیرونی آلات کمپیوٹر
- ب: ونڈوز، انٹرنیٹ
- 1- تعارف، ڈیسک ٹاپ اور ونڈوز کی اقسام 2- فولڈر بنانا، کاپی کرنا، فائل کی نقل و حرکت و اخراج
- انٹرنیٹ کا استعمال: تعارف، انٹرنیٹ اساسی خدمات، ورلڈ وائیڈ ویب سائٹس، ای میل کا استعمال
- ج- ایم ایس ورڈ، ایم ایس ایکسل اور ان پیج
- 1- ورڈ اور ان پیج میں جانا، فائل کھولنا، ایڈٹ کرنا، سکین کرنا، فارمیٹنگ اور پرنٹنگ
- 2- ایکسل ورک بک، ان پیج اور ورڈ میں کثیر دستاویزات پر کام کرنا 3- ورک بک پر کام کرنا، ایکسل کے انتظامی کلیات کو دیکھنا
- 4- ورڈ / ان پیج میں پرزینٹیشن تیار کرنا اور ملٹی میڈیا پروجیکٹر کی معرفت سے چلانا 5-
- ہائپرنگ
- نوٹ: پہلا بنیادی مقصد طالبعلموں میں عمومی طور کمپیوٹر کے ذریعے ورلڈ وائیڈ ویب سائٹ اور ای میل / خط و