UNIVERSITY OF SARGODHA
OFFICE OF THE REGISTRAR
(ACAD BRANCH)

NOTIFICATION

On the recommendations of Academic Council made in its 24th (1/2025) meeting held on 26.08.2025, the Syndicate in its 72nd (4/2025) meeting held on 12.09.2025 has approved the curriculum of BS in Disaster Management for implementation w.e.f. Fall 2025 (Annex-'A').

(WAQAR AHMAD)
Additional Registrar (General)

No. SU/Acad/25/1159

Dated: 29.10.2025

Distribution:

- Chairman, Department of Earth Sciences
- Controller of Examinations
- Director Academics

C.C:

- Dean, Faculty of Sciences
- Director, QEC
- Secretary to the Vice-Chancellor
- PA to Registrar
- Notification File

Scheme of Studies

BS Disaster Management

w.e.f Fall,2025

1. **Title of Degree Program: BS in Disaster Management**

2. **Program Learning Objectives:**

The objectives of the BS Disaster Management program are designed to equip students with a thorough understanding of disaster risk reduction, preparedness, response, and recovery. Students will acquire essential skills in risk assessment, emergency planning, and crisis management, with a focus on integrating scientific, social, and policy perspectives. The program aims to cultivate the ability to analyze complex disaster scenarios, develop sustainable solutions, and effectively communicate and coordinate with diverse stakeholders during emergencies. Graduates will be well-prepared to take on leadership roles and drive innovation in disaster management within governmental, non-governmental, and international organizations.

3. **Program Structure:**

Duration	Minimum 4-Years (8-Semesters), Maximum 6-Years (12-Semesters)
Admission Requirements:	At least 45% marks in HSSC (Part I/II) or DAE (First & Second Year) or equivalent.
Degree Completion Requirement	Students are required to study 131 credit hours and pass all courses of BS program for the completion of this degree as notified below securing a minimum CGPA 2.5 out of 4.00 to obtain degree after 8 semesters.

4. **General Education (Gen Ed) Requirements: (Mandatory/Core Curses):**

Sr. No.	Semester	Course Code	Course Title	Credit Hours	Prerequisite
1.	2	URCG-5112	Fables, Wisdom Literature and EPIC	2(2-0)	Nil
2.	4	URCG-5114	Basic Science	3(2-1)	Nil
3.	2	URCG-5116	Science of Society-I	2(2-0)	Nil
4.	1	URCG-5118	Functional English	3(3-0)	Nil
5.	3	URCG-5119	Expository Writing	3(3-0)	Nil
6.	2	URCG-5120	Exploring Quantitative Skills	3(3-0)	Nil
7.	3	URCG-5121	Tools for Quantitative Reasoning	3(3-0)	Nil
8.	1	URCG-5105 URCG-5126	Islamic Studies (OR) Religious Education/Ethics	2(2-0)	Nil
9.	3	URCG-5122	Ideology and Constitution of Pakistan	2(2-0)	Nil
10.	1	URCG-5123	Applications of Information and Communication Technologies (ICT)	3(2-1)	Nil
11.	4	URCG-5124	Entrepreneurship	2(2-0)	Nil
12.	4	URCG-5125	Civics and Community Engagement	2(2-0)	Nil
13.	1	URCG-5129 URCG-5131	Understanding of Holy Quran-I/ Fehm-e-Quran-I/ Ethics-I	1(0-1)	Nil
14.	2	URCG-5130 URCG-5132	Understanding of Holy Quran-II/ Fehm-e-Quran-II/ Ethics-II	1(0-1)	Nil
15.	3	URCG-5127	Seerat of the Holy Prophet (SAW)	1(1-0)	Nil
16.	2	URCG-5128	Pakistan Studies	2(2-0)	Nil
			GE Courses Credit Hours Total	35	

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5. **Single Major Courses:**

Sr. No.	Course Code	Course Title	Credit	Prerequisite
1.	DIMS-5101	Basic Science of Natural Hazards	3(3-0)	Nil
2.	DIMS-5102	Fundamentals of Disaster Management	3(3-0)	Nil
3.	DIMS-5103	Basic Principles of Disaster Planning and	3(3-0)	Nil
4.	DIMS-5104	Disaster and Sustainable Development	3(3-0)	Nil
5.	DIMS-5105	Community Based Disaster Risk Management	3(3-0)	Nil
6.	DIMS-5106	Hydro-meteorological Hazards	3(3-0)	Nil
7.	DIMS-5107	Geo-Hazards	3(3-0)	Nil
8.	DIMS-5108	Complex & Biological Hazards	3(2-1)	Nil
9.	DIMS-5109	Emergency Management	3(2-1)	Nil
10.	DIMS-5110	Disaster Risk	3(3-0)	Nil
11.	DIMS-5111	Research Approaches in Disaster Management	3(0-3)	Nil
12.	DIMS-5112	Applied Geomorphology and Natural Hazards	3(2-1)	Nil
13.	DIMS-6113	Gender Mainstreaming in Disaster Management	3(2-1)	Nil
14.	DIMS-6114	Economics of Disasters	3(2-1)	Nil
15.	DIMS-6115	Disaster Project Management	3(2-1)	Nil
16.	DIMS-6116	Multi-Hazards Vulnerabilities	3(2-1)	Nil
17.	DIMS-6117	Research Project /Internship	3(2-1)	Nil
18.	DIMS-6118	Natural Hazards of Pakistan	3(2-1)	Nil
19.	DIMS-6119	Disasters Risk and Urbanization	3(2-1)	Nil
20.	DIMS-6120	GIS and Remote Sensing in Disaster Management	3(3-0)	Nil
21.	DIMS-6121	Climate Change and Natural Hazards	3(0-3)	Nil
22.	DIMS-6122	Techniques of Hazard Mapping	3(3-0)	Nil
23.	DIMS-6123	Practical in Disaster Management	3(3-0)	Nil
24.	*DIMS-61--	Elective Course-I	3(3-0)	Nil
25.	*DIMD-61--	Elective Course-II	3(3-0)	Nil
26.	*DIMS-61--	Elective Course-III	3(3-0)	Nil
	Major Courses Credit Hours Total		78	

* As notified by chairman from List A

6. **Interdisciplinary/Allied courses: minimum 12 credit hours:**

1.	----	**Interdisciplinary/Allied course-I	3(3-0)	Nil
2.	----	**Interdisciplinary/Allied course-II	3(3-0)	Nil
3.	----	**Interdisciplinary/Allied course-III	3(3-0)	Nil
4.	----	**Interdisciplinary/Allied course-IV	3(3-0)	Nil
	Interdisciplinary Courses Credit Hours Total		12	

*as notified by the Chairman from list B.

7. **Field experience/internship: Minimum 03 credit hours:**

1.	DIMS-6190	Field experience	3(0-3)	Nil

8. **Capstone project: Minimum 03 credit hours:**

1.	DIMS-6191	Capstone project	3(3-0)	Nil

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9. **List A: List of Elective Courses**

- DIMS-6130 Climate Change Adaptation and Disasters
- DIMS-6131 Environment and Hazards Management
- DIMS-6132 Earthquake Hazard Risk Reduction
- DIMS-6133 Natural Resources and Disaster
- DIMS-6134 Flood Hazard Risk Reduction
- DIMS-6135 Hydrogeology and Water-Related Disasters
- DIMS-6136 Coastal Zone Management and Disasters
- DIMS-6137 Geo-Engineering of Disasters
- DIMS-6138 Artificial Intelligence in Disaster Management

10. **List B: Interdisciplinary/ Allied Courses:-**

- GEOL-5101 Introduction to Geology
- GEOG-6118 Environmental Geography
- GEOG-5109 Climatology
- GEOG-6121 Geography of Pakistan
- GEOG-6119 Urban Geography
- GEOG-6128 Regional Planning & Development
- GEOL-6122 Environmental Geology
- GEOG-6131 Conservation of Resources

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Scheme of Studies

BS in Disaster Management

Semester-I

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
GE-1	URCG-5118	Functional English	3(3-0)	Nil
GE-2	URCG-5105 URCG-5126	Islamic Studies (OR) Religious Education/Ethics	2(2-0)	Nil
GE-3	URCG-5123	Applications of Information and Communication Technologies (ICT)	3(2-1)	Nil
Major-1	DIMS-5101	Basic Science of Natural Hazards	3(3-0)	Nil
Major-2	DIMS-5102	Fundamentals of Disaster Management	3(3-0)	Nil
Major-3	DIMS-5103	Basic Principles of Disaster Planning and	3(3-0)	Nil
GE-4	URCG-5129 URCG-5131	Understanding of Holy Quran-I/ Fehm-e-Quran-I/ Ethics-I	1(0-1)	Nil

Semester Total Credit Hours: 18

Semester-II

Category	Course Code	Course Title	Credit	Pre-Requisite
GE-5	URCG-5112	Fables, Wisdom Literature and EPIC	2(2-0)	Nil
GE-6	URCG-5116	Science of Society-I	2(2-0)	Nil
GE-7	URCG-5120	Exploring Quantitative Skills	3(3-0)	Nil
GE-8	URCG-5127	Seerat of the Holy Prophet (SAW)	1(1-0)	Nil
Major-4	DIMS-5104	Disaster and Sustainable Development	3(3-0)	Nil
Major-5	DIMS-5105	Community Based Disaster Risk Management	3(3-0)	Nil
Major-6	DIMS-5106	Hydro-meteorological Hazards	3(3-0)	Nil
GE-09	URCG-5128	Pakistan Studies	2(2-0)	Nil

Semester Total Credit Hours: 19

Semester-III

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
GE-10	URCG-5119	Expository Writing	3(3-0)	Nil
GE-11	URCG-5121	Tools for Quantitative Reasoning	3(3-0)	Nil
GE-12	URCG-5122	Ideology and Constitution of Pakistan	2(2-0)	Nil
GE-13	URCG-5130 URCG-5132	Understanding of Holy Quran-II/ Fehm-e-Quran-II Ethics-II	1(0-1)	Nil
Major-7	DIMS-5107	Geo-Hazards	3(3-0)	Nil
Major-8	DIMS-5108	Complex & Biological Hazards	3(2-1)	Nil
Major-9	DIMS-5109	Emergency Management	3(2-1)	Nil

Semester Total Credit Hours: 18

Semester-IV

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
GE-14	URCG-5114	Basic Science	3(2-1)	Nil
GE-15	URCG-5124	Entrepreneurship	2(2-0)	Nil
GE-16	URCG-5125	Civics and Community Engagement	2(2-0)	Nil
Major-10	DIMS-5110	Disaster Risk.....	3(3-0)	Nil
Major-11	DIMS-5111	Research Approaches in Disaster	3(0-3)	Nil
Major-12	DIMS-5112	Applied Geomorphology and Natural	3(2-1)	Nil

Semester Total Credit Hours: 16

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Summer Semester *(For student existing program to have Associate Degree)*

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
Compulsory	DIMS-5130	Internship	3(3-0)	Completion of minimum 60 credit hours

Semester-V

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
ID-1	-----	**Interdisciplinary/Allied course-I	3(3-0)	Nil
ID-2	-----	**Interdisciplinary/Allied course-II	3(3-0)	Nil
Major-13	DIMS-6113	Gender Mainstreaming in Disaster Management	3(2-1)	Nil
Major-14	DIMS-6114	Economics of Disasters	3(2-1)	Nil
Major-15	DIMS-6115	Disaster Project Management	3(2-1)	Nil

Semester Total Credit Hours: 15

Semester-VI

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
ID-3	-----	**Interdisciplinary/Allied course-III	3(3-0)	Nil
ID-4	-----	**Interdisciplinary/Allied course-IV	3(3-0)	Nil
Major-16	DIMS-6116	Multi-Hazards Vulnerabilities	3(2-1)	Nil
Major-17	DIMS-6117	Research Project /Internship	3(2-1)	Nil
Major-18	DIMS-6118	Natural Hazards of Pakistan	3(2-1)	Nil

Semester Total Credit Hours: 15

Semester-VII

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
Major-19	DIMS-6119	Disasters Risk and Urbanization	3(2-1)	Nil
Major-20	DIMS-6120	GIS and Remote Sensing in Disaster Management	3(3-0)	Nil
Major-21	DIMS-6121	Climate Change and Natural Hazards	3(0-3)	Nil
Major-22	DIMS-6122	Techniques of Hazard Mapping	3(3-0)	Nil
Major-23	DIMS-6123	Practical in Disaster Management	3(3-0)	Nil

Semester Total Credit Hours: 15

Semester-VIII

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
Major-24	DIMS-61**	Elective Course-I	3(3-0)	Nil
Major-25	DIMS-61**	Elective Course-II	3(3-0)	Nil
Major-26	DIMS-61**	Elective Course-III	3(3-0)	Nil
Compulsory	DIMS-6190	Field experience	3(0-3)	Nil
Compulsory	DIMS-6191	Capstone project	3(3-0)	Nil

Semester Total Credit Hours: 15

Degree Program Total: 131

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URCG-5118	Functional English	3(3-0)

The course aims at providing understanding of a writer's goal of writing (i.e. clear, organized and effective content and to use that understanding and awareness for academic reading and writing. The objectives of the course are to make the students acquire and master the grammatical academic writing skills. The course would enable the students to develop argumentative writing techniques. The students would be able to logically add specific details on the topics such as facts, examples and statistical or numerical values. The course will also provide insight to convey the knowledge and ideas in an objective and persuasive manner. Furthermore, the course will also enhance the students' understanding of ethical considerations in writing academic assignments and topics including citation, plagiarism, formatting and referencing the sources as well as the technical aspects involved in referencing.

Contents

1. Developing Analytical Skills
2. Transitional devices (word, phrase and expressions)
3. Development of ideas in writing
4. Reading Comprehension
5. Precis Writing
6. Developing argument
7. Sentence structure: Accuracy, variation, appropriateness, and conciseness
8. Appropriate use of active and passive voice
9. Organization and Structure of a Paragraph
10. Organization and structure of Essay
11. Types of Essays

Recommended Texts:

1. Bailey, S. (2011). Academic writing: A handbook for international students (3rd ed.). New York: Routledge.
2. Eastwood, J. (2011). A Basic English grammar. Oxford: Oxford University Press.
3. Swales, J. M., & Feak, C. B. (2012). *Academic writing for graduate students: Essential tasks and skills* (3rd ed.). Ann Arbor: The University of Michigan Press.
4. Swan, M. (2018). *Practical English usage* (8th ed.). Oxford: Oxford University Press.

Suggested Readings:

1. Biber, D., Johansson, S., Leech, G., Conrad, S., Finegan, E., & Quirk, R. (1999). *Longman grammar of spoken and written English*. Harlow Essex: MIT Press.
2. Cresswell, G. (2004). *Writing for academic success*. London: SAGE.
3. Johnson-Sheehan, R. (2019). *Writing today*. Don Mills: Pearson.
4. Silvia, P. J. (2019). *How to write a lot: A practical guide to productive academic writing*. Washington: American Psychological Association
5. Thomson, A. J., & Martinet, A. V. (1986). *A Practical English Grammar*. Oxford: Oxford University Press

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URCG-5105	Islamic Studies (Compulsory)	2(2-0)

Introductory/compulsory foundation course

Islamic Studies engages in the study of Islam as a textual tradition inscribed in the fundamental sources of Islam: Qur'aan and Hadith, history and particular cultural contexts. The area seeks to provide an introduction to and a specialization in Islam through a large variety of expressions (literary, poetic, social, and political) and through a variety of methods (literary criticism, hermeneutics, history, sociology, and anthropology). It offers opportunities to get fully introductory foundational basis of Islam in fields that include Qur'aanic studies, Hadith and Seerah of Prophet Muhammad (PBUH), Islamic philosophy, and Islamic law, culture and theology through the textual study of Qur'aan and Sunnah.

- To make students understand the relevance and pragmatic significance of Islam in theirlives.
- To make learners comprehend the true spirit of Islam with reference to modernworld
- To generate a sense of Islamic principles as a code of living that guarantee the effective solutions to the current challenges ofbeing.
- To provide Basic information about IslamicStudies
- To enhance understanding of the students regarding IslamicCivilization
- To improve Students skill to perform prayers and otherworships
- To enhance the skill of the students for understanding the issues related to faith and religious life.

Contents

1.Introduction to Qur'aanic Studies	تعارف قرآن مجید
1) Basic Concepts of Qur'aan	قرآن مجید کا بنیادی تعارف
2) History of the compilation of Qur'aa	تدوین قرآن مجید
3) Uloom-ul-Qur'aan	علوم القرآن

مطالعہ قرآن (تعارف قرآن مجید، منتخب آیات کا ترجمہ و تفسیر: سورۃ البقرہ آیات 1-5، 284-286؛ سورۃ الحجرات آیات 1-18؛ سورۃ الفرقان آیات 63-77؛ سورۃ المومنون آیات 1-11؛ سورۃ الاحزاب آیات 6، 21، 32- 33، 40، 56- 59؛ سورۃ الانعام آیات 151-153؛ سورۃ الصف آیات 1- 14؛ الحشر آیات 18- 20؛ آل عمران آیات 190- 192؛ النحل آیات 12-14؛ لقمن آیت 20، حم السجدہ آیت 53

2. Introduction to Hadith	تعارف حدیث
1) Legal Status of Hadith	حدیث کی قانونی حیثیت
2) History of the compilation of Hadith	تاریخ جمع وتدوین حدیث
3) Classifications of Hadith	حدیث کی اقسام

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متن، حدیث: ا درج ذیل موضوعات پر احادیث کا مطالعہ

ا۔اعمال کا اجر نیت پر منحصر ہے۔2۔بہترین انسان قرآن کا طالب علم اور اس کا معلم ہے۔3۔کتاب و سنت گمراہی سے بچنے کا ذریعہ ہیں 4۔ارکان اسلام 5۔اسلام، ایمان، احسان اور قیامت کی نشانیاں، 6۔بچوں کو نماز کی تلقین 7۔دین کا گہرا فہم اللہ کی خاص عنایت ہے 8۔حصول علم، تلاوت قرآن اور عمل کی اہمیت و فضیلت، 9۔روز محشر میں ہونے والا محاسبہ، 10۔حقوق اللہ کے ساتھ ساتھ حقوق العباد کا خیال رکھنا بھی لازم ہے 11۔حسن خلق کی عظمت اور فحش و بدگوئی کی مذمت 12۔دنیا و آخرت کی بھلائی کی ضامن چار چیزیں، 13۔ہلاک کر دینے والی سات چیزیں، 14۔بے عمل مبلغ کا عبرت ناک انجام 15۔ہر شخص نگران ہے اور ہر شخص مسئول

3. Sirah of the Prophet (PBUH)	سیرت النبی ﷺ
1. Significance of Seerah Studies	مطالعہ سیرت کی ضرورت و اہمیت
2. Prophetic principles of Character building	تعمیر سیرت و شخصیت کا نبوی منہاج

اقامت دین کا نبوی طریق کار، اقامت دین بعہد خلافت راشدہ، میثاق مدینہ، خطبہ حجۃ الوداع، اخلاقی تعلیمات، تشکیل اجتماعیت اور اسوہ حسنہ، قرآن مجید میں سیرت سرور عالم کا بیان، غزوات نبوی ﷺ کے مقاصد و حکمتیں

4. Islamic Culture & Civilization	اسلامی تہذیب و تمدن
1) Basic Concepts of Islamic Civilization	اسلامی تہذیب کا مفہوم
2) Historical evaluation of Islamic Civilization	اسلامی تہذیب کا تاریخی ارتقاء
3) Salient feature of Islamic Civilization	اسلامی تہذیب کی نمایاں خصوصیات
4) Islamic Civilization and Contemporary Issues	اسلامی تہذیب و تمدن اور معاصر مسائل

اسلامی تہذیب کے عوامل و عناصر، اسلامی تہذیب کے علمی، معاشرتی اور سماجی اثرات، تہذیبوں کے تصادم کے نظریے کا تنقیدی جائزہ، تہذیبی تصادم کے اثرات و ہیجی، طبعی، حیاتیاتی اور معاشرتی علوم میں مسلمانوں کا کردار، نامور مسلمان سائنسدان

Pre-Requisite: Nil

Recommended Books

1) Hameed ullahMuhammad, —Emergence ofIslam ,IRI,Islamabad
2) Hameed ullah Muhammad, —Muslim Conduct ofState
3) Hameed ullah Muhammad, _Introduction toIslam
4) Ahmad Hasan, —Principles of Islamic Jurisprudence, Islamic Research Institute, International Islam University, Islamabad (1993)
5) Dr Muhammad Zia-ul-Haq,—Introduction to Al Sharia Al Islamia, Allama Iqbal Open University. Islamabad(2001)
6) Dr. Muhammad Shahbaz Manj, Teleeemat-e- Islam

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URCG-5126	Religious Education/ ETHICS	2(2-0)

Course Contents:

1. Meaning and Scope of Ethics.
2. Relation of Ethics with:
   - (a) Religion
   - (b) Science
   - (c) Law
3. Historical Development of Morality: (a). Instinctive Moral Life.
   - (b). Customary Morality.
   - (c). Reflective Morality.
4. Moral Theories:
   - (a). Hedonism (Mill)
   - (b). Intuitionism (Butler)
   - (c). Kant's Moral Theory.
5. Moral Ethics and Society.
   - (a). Freedom and Responsibility. (b). Tolerance
   - (c). Justice
   - (d). Punishment (Theories of Punishment)
6. Moral Teachings of Major Religions: a). Judaism
   - b). Christianity
   - c). Islam
7. Professional Ethics:
   - a). Medical Ethics
   - b). Ethics of Students
   - c). Ethics of Teachers
   - d). Business Ethics .

Recommended Texts:

1. William Lille. An Introduction to Ethics., London Methuen & Co. latest edition.
2. Titus, H.H. Ethics for Today. New York: American Book, latest edition.
3. Hill, Thomas. Ethics in Theory and Practice. N.Y. Thomas Y. Crowel, latest edition
4. Ameer Ali, S. The Ethics of Islam. Culcutta: Noor Library Publishers, latest edition
5. Donaldson, D.M. Studies in Muslim Ethics. London: latest edition. 6. Sayeed, S.M.A.(Tr.) Ta`aruf-e-Akhlaqiat. Karachi: BCC&T, Karachi University of

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URCG-5123	Applications of Information & Communication Technologies (ICT)	3 (2-1)

The course introduces students to information and communication technologies and their application in the workplace. Objectives include basic understanding of computer software, hardware, and associated technologies. How computers can be used in the workplace, how communications systems can help boost productivity, and how the Internet technologies can influence the workplace. Students will get basic understanding of computer software, hardware, and associated technologies. They will also learn how computers are used in the workplace, how communications systems can help to boost productivity, and how the Internet technologies can influence the workplace.

Contents

1. Introduction, Overview of Information Technology.
2. Hardware: Computer Systems & Components, Storage Devices.
3. Software: Operating Systems, Programming and Application Software.
4. Databases and Information Systems Networks.
5. File Processing Versus Database Management Systems.
6. Data Communication and Networks.
7. Physical Transmission Media & Wireless Transmission Media.
8. Applications of smart phone and usage.
9. The Internet, Browsers and Search Engines.
10. Websites and their types.
11. Email Collaborative Computing and Social Networking.
12. E-Commerce.
13. IT Security and other issues.
14. Cyber Laws and Ethics of using Social media.
15. Use of Microsoft Office tools (Word, Power Point, Excel) or other similar tools depending on the operating system.
16. Other IT tools/software specific to field of study of the students if any.

Recommended Texts::

1. Discovering Computers 2022: Digital Technology, Data and Devices by Misty E. Vermaat, Susan L. sebok; 17th edition.

Suggested Readings:

1. Computing Essentials 2021 by Timothy J. O'Leary and Linda I. O'Leary, McGraw Hill Higher Education; 26th edition.
2. Computers: Understanding Technology by Fuller, Floyd; Larson, Brian: edition 2018.

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DIMS-5101	Basic Science of Natural Hazards	3(3-0)

Course Brief:

This course provides an introduction to the fundamental scientific principles behind natural hazards, including earthquakes, volcanoes, tsunamis, floods, landslides, hurricanes, and wildfires. Students will explore the physical processes that lead to these hazards, their global distribution, and the methods used to monitor, predict, and mitigate their impacts. Emphasis is placed on understanding the interplay between natural systems and human activities, and how scientific knowledge can be applied to reduce the risk and enhance resilience to natural disasters.

Course Learning Objectives:

In this course, Students will explore the physical processes and mechanisms that drive natural hazards is essential for identifying the various types of hazards and their global distribution. By analyzing these natural events, we can better comprehend their impact on human societies and ecosystems, which often suffer devastating consequences. Exploring the methods and technologies used in monitoring and predicting natural hazards allows us to anticipate these events more accurately, providing crucial time for preparation. Furthermore, evaluating strategies for mitigating risks and enhancing community resilience is vital to reducing the long-term effects of these hazards and ensuring that societies can recover and adapt more effectively.

Course Contents:

1. Introduction to Natural Hazards - Define and classify natural hazards; review global distribution patterns.
2. Tectonic Hazards - Examine earthquake causes, effects, and prediction methods; explore volcanic types, eruptions, and monitoring; understand tsunami generation, propagation, and impacts.
3. Hydrological and Meteorological Hazards - Investigate flood types, causes, and management; analyze formation, tracking, and impacts of hurricanes, cyclones, and typhoons; study drought causes, effects, and mitigation strategies.
4. Mass Movement Hazards - Identify landslide triggers, types, and prevention; understand avalanche dynamics and risk management.
5. Wildfire Hazards - Explore wildfire causes, spread, and management; assess environmental and human factors in wildfire risk.
6. Human Interaction and Risk Reduction - Analyze how human activities exacerbate natural hazards; evaluate risk assessment, vulnerability analysis, and community resilience strategies.
7. Case Studies and Future Trends - Review significant historical disasters; explore emerging technologies in hazard prediction and mitigation; assess climate change impacts on natural hazards.

Labs: Students simulate earthquakes, volcanic eruptions, and tsunamis using shake tables, wave tanks, and eruption models. They build floodplain models, analyze weather data for hurricanes, study wildfire behavior with controlled burns, and perform risk assessments for mitigation strategies.

Recommended Texts:

1. Hyndman, D., & Hyndman, D. (2006). Natural hazards and disasters.
2. Davis, M. E., & Simkin, P. M. T. (2020). Introduction to hazards and disasters: Understanding risk and resilience. Springer. ISBN: 978-3030372390.

M.F

DIMS-5102	Fundamentals of Disaster Management	3(3-0)

Course Brief:

This course provides a comprehensive introduction to disaster management, focusing on the principles, practices, and strategies essential for effective disaster response and recovery. Students will explore the disaster management cycle, including preparedness, mitigation, response, and recovery. The course covers risk assessment, resource management, and the role of various stakeholders in disaster management. Emphasis is placed on developing practical skills and understanding the complexities of managing disasters in different contexts, including urban and rural settings.

Course Learning Objectives:

This course will provide a comprehensive understanding of the disaster management cycle and its components, including preparedness, mitigation, response, and recovery. Students will analyze risk factors and develop strategies for effective disaster preparedness and mitigation, learning the principles behind efficient disaster response and recovery. Additionally, they will explore the roles and responsibilities of various stakeholders involved in disaster management and develop practical skills in managing disaster situations and coordinating resources effectively.

Course Contents:

1. **Introduction to Disaster Management** - Overview of principles, practices, and the disaster management cycle: preparedness, mitigation, response, and recovery.
2. **Risk Assessment and Mitigation** - Identifying risks, assessing vulnerabilities, and developing mitigation strategies.
3. **Disaster Preparedness** - Creating preparedness plans and protocols; training and exercises for readiness.
4. **Disaster Response** - Coordinating disaster response operations; managing resource allocation and logistics.
5. **Disaster Recovery** - Strategies for effective recovery and reconstruction; addressing long-term impacts and resilience.
6. **Stakeholder Roles and Collaboration** - Understanding roles of government, NGOs, and community organizations; enhancing collaboration and communication.
7. **Case Studies and Practical Applications** - Analyzing past disasters; simulations and role-playing to apply concepts.

Labs: Lab work involves simulating disaster responses, creating preparedness plans, using mapping tools for risk assessment, and role-playing stakeholder roles. Students also analyze past disasters to learn practical lessons.

Recommended Texts:s

1. Alexander, D. (2015). *Natural Disaster Management*. Springer. ISBN: 978-9401793494
2. Smith, K. (2013). *Environmental Hazards: Assessing Risk and Reducing Disaster* (6th ed.). Routledge.

Suggested Readings

1. Coppola, D. P. (2018). *Introduction to International Disaster Management* (3rd ed.). CRC Press. ISBN: 978-0367330830
2. Paton, D., & Johnston, D. M. (2006). *Disasters and Communities: Vulnerability, Resilience and Preparedness*. Charles C. Thomas Publisher. ISBN: 978-039807682

M.F

DIMS-5103	Basic Principles of Disaster Planning and Management	3(2-1)

Course Brief:

This course provides an introduction to the fundamental principles of disaster planning and management. It covers the essential concepts of disaster preparedness, response, recovery, and mitigation. Students will learn about the disaster management cycle, risk assessment, and the development of effective disaster plans. The course also emphasizes the importance of collaboration among various stakeholders and the application of best practices through case studies and practical exercises.

Course Learning Objectives:

The course aims to equip students with a solid understanding of disaster planning and management principles. Students will learn to identify and assess disaster risks, develop comprehensive disaster plans, and implement effective response and recovery strategies. The course emphasizes the role of various stakeholders in disaster management, including government agencies, NGOs, and community organizations. By analyzing case studies and participating in practical exercises, students will gain hands-on experience in managing disaster scenarios and coordinating resources effectively.

Course Contents:

1. **Introduction to Disaster Management** - Explore core principles and the disaster management cycle, including preparedness, response, recovery, and mitigation.
2. **Risk Assessment and Planning** - Learn methods for identifying and assessing risks and vulnerabilities, and develop effective disaster plans.
3. **Preparedness Strategies** - Develop and implement preparedness plans, including training exercises and protocols.
4. **Response Operations** - Understand the coordination of disaster response efforts and effective resource management.
5. **Recovery and Mitigation** - Examine strategies for disaster recovery, reconstruction, and long-term resilience.
6. **Stakeholder Roles** - Analyze the roles and responsibilities of various stakeholders in disaster management and enhance collaboration.

Labs: Students will simulate disaster response scenarios to practice coordination and resource management and develop and review disaster preparedness plans through case studies.

Recommended Texts:s

1. Haddow, G. D., Bullock, J. A., & Coppola, D. P. (2022). *Introduction to Emergency Management* (7th ed.). Butterworth-Heinemann. ISBN: 978-0128239348
2. Alexander, D. (2015). *Natural Disaster Management*. Springer. ISBN: 978-9401793494

Suggested Readings

1. Coppola, D. P. (2018). *Introduction to International Disaster Management* (3rd ed.). CRC Press. ISBN: 978-0367330830
2. Paton, D., & Johnston, D. M. (2006). *Disasters and Communities: Vulnerability, Resilience and Preparedness*. Charles C. Thomas Publisher. ISBN: 978-03980768.

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946 Annex-"CXXI"
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Model Course Outline
for the Course Understanding of Quran – I

Course Title: Understanding of Quran – I
Course Book: Muallim ul Quran (Volume 1, 2 & 3) by Dr Ubaid ur Rahman
Credit Hours: 1 (0-1)
Contact Hours: 3 per week
Weeks: 15-16 (45-48 hours)

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Develop the ability to understand basic words of the Quran, phrases and sentences that do not contain verbs (unit 1 to 5 of Muallim ul Quran Book) and then sentences having present tense (first half of unit 6 of Muallim ul Quran Book).
2. Acquire a strong foundation for understanding long verses of the Quran with clarity.
3. Comprehend Quranic vocabulary, particles (operative & non operative particles) , compounds (Adjective & Possessive compound), pronouns (singular & plural) and types of plural through hundreds of Quranic sentences.
4. Recognize and understand different styles of Quranic sentences, including nominal sentence, emphatic sentence, double emphatic sentence, negative sentence, interrogative sentence, oath –based sentences.
5. Strengthen understanding of fundamental Quranic linguistic styles, expressions and idioms.
6. Understand at least 30 to 40 % of each page of the holy Quran.

Provision of material, content and books:

- **Paper book:** All volumes are available in printed book form.
- **Tutorial videos:** Teaching video of each lesson available on YouTube.
- **Confirmation Videos:** A complete series of confirmation videos of all lessons is available in which the student can confirm his answers.
- **A flipbook:** A flipbook edition is also accessible.
- **Helping material:** Helping material for the teachers like quizzes, question papers and images , available on website.

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Course Outline:

Weeks	Lectures (1.5 hrs)	Units	Lessons	Assignments/Home Task	Linguistic Rules
1.	1.	1	1-ن	Writing the meaning of Quranic words Lesson 1-8	Proper Noun Masculine & Feminine
	2.	1	9-14	Writing the meaning of Quranic words 9-14	Two kinds of plural Concept of (ل) "And" Common Noun
2.	1.	1	15-17	Writing the meaning of Quranic words, phrases & translation of Sentences 15-17	Demonstrative Noun (This & That for Masculine (هذا- هذه) Demonstrative Noun (This & That for Feminine) (تلك- تلك)
	2	1	18-19 & Revision (Unit 1)	Writing the meaning of Quranic words , phrases & translation of Sentences 17-19 Quiz	Laam for emphasis (لام التأكيد) Superlative Degree like اكبر Revision of all Quranic Sentences
3.	1.	Unit 2	1-3	Writing the meaning of Quranic words, phrases & translation of Sentences 1-3	Emphatic Particle ان Preposition "For" (اللام) Preposition (فى)
		2	4-6	Writing the meaning of Quranic words, phrases & translation of Sentences 4-6	Preposition (على- من- الى)
4.	1.	2	7- 9	Writing the meaning of Quranic words & translation of Sentences 7-9	Preposition (الباء) Absolute Negation Particle Exceptive Particle (لا النافية (الا) (ما النافية)(للجنس
		2	10-13 & Revision (Unit 2)	Writing the meaning of Quranic words, phrases & translation of Sentences 10-13 Quiz	Subordinating Conjunction(ان), Was (كان), Vocative Particle(حرف النداء)

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5.	1.	Unit 3	1-2	Writing the meaning of Quranic phrases 1-2	Quranic Adjective Compounds (صفة ومو صوف)
	2.	3	3-5	Writing the meaning of Quranic phrases & translation of sentences 3-5	Quranic Possessive Construction (مضاف ومضاف اليه)
6.	1	3	6 -7	Writing the meaning of Quranic phrase translation of sentences 6-7	Quranic Possessive Construction (مضاف ومضاف اليه)
	2.	3	8-10 & Revision (Unit 3)	Writing the meaning of Quranic phrase & translation of sentences 8-10 Quiz	Active Participle (اسم الفاعل), Passive Participle (اسم المفعول), Dual (مثنى)
7.	1	Unit 4	1-2	Writing the meaning of Quranic phrase & translation of sentences 1-2	Personal Pronoun He(هو المنفصل) Possessive Pronoun His ه (المتصل)
	2.	4	3-4	Writing the meaning of Quranic phrase & translation of sentences 3 -4	Possessive Pronoun with prepositions like في بيته Pronoun "His" with prepositions like له، منه، فيه
8		4	5-8	Writing the meaning of Quranic sentences 5-8	Personal Pronoun You(أنت المنفصل) Possessive Pronoun Your ك (المتصل) Possessive Pronoun with prepositions like في بيتك Pronoun "your" with prepositions like لك، منك، فيك
	2	Mid Term			

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Department of Islamic Studies

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9.	1.	4	9-12	Writing the meaning of Quranic phrases & sentences 9-12	Personal Pronoun She(هي المنفصل) Possessive Pronoun Her ها المتصل) Possessive Pronoun with prepositions like فى بيتها Pronoun "Her" with prepositions like لها
	2.	4	13-16	Writing the meaning of Quranic phrases & sentences 13-16	Personal Pronoun I (أنا المنفصل) Possessive Pronoun Her ي المتصل) Possessive Pronoun with prepositions like فى بيتىPronoun "My" with prepositions like لى
10.	1	4	17 & Revision Unit 4	Revision of all Quranic sentences of Unit 4 Quiz	Adverb (حال)
	2.	Unit 5	1-2	Writing the meaning of Quranic phrases & sentences 1-2	Masculine Plural جمع المذكر السالم و جمع المذكر السالم الملحق بحرف المد
11.	1.	5	3-4	Writing the meaning of Quranic phrases & sentences 3-4	Possessive Construction with Plurals جمع المذكر السالم السابق بالإضافة
	2.	5	5-6	Writing the meaning of Quranic phrases, sentences & verses 5-6	Personal Pronoun They (هم المنفصل) Possessive Pronoun Their هم المتصل)
12.	1.	5	7-8	Writing the meaning of Quranic phrases, sentences & verses 7-8	Possessive Pronoun with prepositions like فى بيتهمPronoun "Their" with prepositions like لهم
	2.	5	9-11	Writing the meaning of Quranic phrases, sentences & verses 9-11	Personal Pronoun You (انتم المنفصل) Possessive Pronoun Your كم المتصل) Possessive Pronoun with prepositions

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					like في بيتكم
13.	1.	5	12-14	Writing the meaning of Quranic phrases & sentences & verses 12-14	Pronoun "Your" with prepositions like لكم Personal Pronoun We (نحن المنفصل) Possessive Pronoun Our نا المتصل)
	2.	5	15-16	Writing the meaning of Quranic sentences & verses 15-16	Possessive Pronoun with prepositions like في بيتنا Pronoun "Our" with prepositions like لنا
14.	1.	5	17-18	Writing the meaning of Quranic sentences & Verses 17-18	Demonstrative Pronoun These, Those (هؤلاء- أولئك)
	2.	5	19-23	Writing the meaning of Quranic sentences & Verses 19-23	(ما / إلا، إن / إلا، إنما، ليس، ما ، أم/أم، أن، بل، كان (الا، اليس، اليوم، يومئذ، سبحان، مابينهما، قل، اذن، بئس، نعم، كلا، ما ادراك، حسب، أعلم ب، مصير ، مرجع، دينا(تمييز)
15.	1.	5	Revision Unit 5	Quiz	
	2.	5	1-3 (till Page 16)	Writing the meaning of Quranic Verbs &Translation of Quranic Sentences & Verses (1-3)	Introduction of Present Tense(فعل مضارع) & Verbal Sentence (جملة فعلية) Present Tense الفعل المضارع صيغة المفرد يعلم
16.	1.	6	3 (From Page 17) & 4 -5	Translation of Quranic Sentences & Verses 3-5	Present Tense الفعل المضارع صيغة المفرد يعلم
	2.	6	6	Translation of Quranic Sentences & Verses	Present Tense الفعل المضارع صيغة الجمع يعلمون

M.F

URCG-5131	Ethics-I	1(0-1)

Ethics-I URCG-5131 1 (0-1)

1-Course Description

The Ethics-I course is designed to provide students with a comprehensive understanding of ethical principles, practices, and theories in various societal contexts. Throughout this degree program, students will explore the complexities of ethic[illegible]heories of semitic and non-semitic religions along with decision-making and develop critical thinking skills to navigate moral dilemmas. This course will also enable the students to interact with others religious identities with humanistic, inclusive and holistic approach

2- Learning Objectives

This course aims to:

1. Introduce students to the fundamental concepts, scope, and importance of ethics.
2. Explore the relationship between law, morality, and social values.
3. Develop a clear understanding of virtuous and immoral ethics and their impact on individual and collective life.
4. Study the role of major religious figures in the moral development of human society and enable students to apply ethical principles for personal development, conflict resolution, and social harmony.

3- Learning Outcomes

By the end of the course, students will be able to:

1. Students will be able to identify and analyze major ethical theories, values, and their scope in social and individual life.
2. Differentiate between law and ethics, and analyze their interrelationship.
3. Identify types of virtuous and immoral ethics and assess their social impacts.
4. Examine the ethical teachings of major religions and their relevance in contemporary society.
5. Apply ethical principles to address modern challenges in personal and professional life.

4-Course Structure

1. Interactive lectures, Group discussions and debates
2. Reflection papers and presentations
3. Assignments and Quiz

Course Contents

Unit 1: Introduction and Fundamentals of Ethics

1. Literal and terminological definition of ethics
2. Literal and terminological definition of values
3. Relationship between law and ethics
4. Need, importance, and scope of ethics

Unit 2: Types of Ethics and Their Impact on Society

- Virtuous ethics: concept, types, benefits, and outcomes
- Immoral ethics: concept, types, and harms
- Role of ethics in social refinement and establishment of peace

Unit 3: Virtuous Ethics (Akhlaq-e-Hasanah)

- Concept, need, and importance of virtuous ethics
- Scope of virtuous ethics in the light of religions
- Major virtues in revealed and non-revealed religions
- Impact of virtuous ethics on individual and collective life

Unit 4: Immoral Ethics (Akhlaq-e-Razilah)

- Concept of immoral ethics
- Social problems caused by immoral ethics
- Practical consequences of immoral ethics
- Major vices in revealed and non-revealed religions

Unit 5: Role of World Religious Figures in Moral Development

- Prophet Moses (AS): introduction, miracles, and role in moral refinement
- Prophet Jesus (AS): introduction, miracles, and role in moral refinement
- Prophet Muhammad (ﷺ): introduction, miracles, and role in moral refinement

Textbook

1. Izutsu, T. (2002). *Ethico-Religious Concepts in the Qur'an*. McGill-Queen's University Press.

Suggested Readings

1. Gert, B. (2005). *Morality: Its Nature and Justification*. Oxford University Press.
2. MacIntyre, A. (2007). *After Virtue: A Study in Moral Theory*. University of Notre Dame Press.
3. Al-Ghazali, Abu Hamid (2001). *The Alchemy of Happiness*. Islamic Texts Society.
4. Nasr, S. [illegible] (1994). *The Heart of Islam: Enduring Values for Humanity*. Harper One.
5. Beauchamp, T. L., & Childress, J. F. (2019). *Principles of Biomedical Ethics*. Oxford University Press.
6. Hasan, Z. (2010). *Ethics in Islam: Key Concepts and Contemporary Challenges*. Islamic Research Institute.

M.F

URCG-5112	Fables, Wisdom Literature and EPIC	2(2-0)

The course will enable students to explore human experiences, cultivate an appreciation of the past, enrich their capacity to participate in the life of their times, and enable an engagement with other cultures and civilizations, both ancient and modern. But independently of any specific application, the study of these subjects teaches understanding and delight in the highest achievements of humanity. The three components of the course, including fables, wisdom literature and epic, will enable the learners to explore and understand the classic tradition in literature. Development of personal virtue, a deep Sufi ethic and an unwavering concern for the permanent over the fleeting and the ephemeral are some of the key themes explored in the contents that will develop an intimate connection between literature and life.

Course Contents:

1. Fables
   - The Fables of Bidpai
   - The Lion and the Bull
   - The Ring-dove
   - The Owls and the Crows
   - Selected poem from Bang-i-Dara
2. Gulistan-e- Sa'di
   - Ten ḥikāyāt from John T. Platts, The Gulistan
3. Epic THE SHĀHNĀMA OF FIRDAUSI

Recommended Texts:

1. John T. P. (1876). *The Gulistan; or, Rose Garden of Shaikh Muslihu'd- Din Sa'di of Shiraz.*
   London: Wm. H. Allen.
2. Chishti, Y.S.(1991). *Sharaḥ-i bāng-i dara.* Lahaur: Maktaba-i ta'mir-i insaniyat

Suggested Readings:

1. Thackston, W. (2000). A Millennium of Classical Persian Poetry. Maryland: Ibex Publishers.
2. Wood, R. (2013). Kalila and Dimna: Fables of Conflict and Intrigue. United Kingdom: Medina
   Publishing, Limited.

M.F

URCG-5116	Science of Society-I	2 (2-0)

Course Description:

This course will introduce students with the subject matter of social science, its scope, nature and ways of looking at social phenomenon. It will make the participants acquaintance with the foundations of modern society, state, law, knowledge and selfhood. While retaining a focus on Pakistani state and society, students will encounter theoretical concepts and methods from numerous social science disciplines, including sociology, politics, economics anthropology and psychology and make them learn to think theoretically by drawing on examples and case studies from our own social context. Students will be introduced to the works of prominent social theorists from both western and non-western contexts. Instruction will include the use of written texts, audio-visual aids and field visits.

Learning Outcomes:

The course has following outcomes:

It will

- Introduce student with the nature of human social behavior and foundations of human group life
- Analyze the reciprocal relationship between individuals and society.
- Make student aware with the nature of societies existing in modern world
- Make students familiar with the philosophy of knowledge of social sciences Introduce students with the works of prominent theories explain human group behavior
- Help students to understand the foundations of society including culture, socialization, politics and economy
- Introduce students with various dimensions of social inequalities with reference to gender, race, ethnicity and religion
- Make them aware about the understanding of various themes pertains to social science in local context
- Help them recognize the difference between objective identification of empirical facts, and subjective formulation of opinionated arguments

Course Outlines:

1. **Introduction to Social Sciences**
   - Social world, Human Social behavior, Foundations of society
   - Evolution of Social sciences
   - Philosophy of Science
   - Scope and nature of social sciences
   - Modernity and social sciences
   - Branches of social science: Sociology, Anthropology, Political Science, Economics

   Society and Community, Historical evolution of Society
   - Types of Societies
   - Foraging society, Horticultural society, Pastoralist society
   - Agrarian societies, Industrial society, Postindustrial society
2. **Philosophy of Knowledge in social Science and social inquiry**
   - Understanding social phenomenon
   - Alternative ways of knowing
   - Science as a source to explore social reality
   - Objectivity, Value-Free research
   - Positivism vs Interpretivism
   - Qualitative vs Quantitative
3. **Culture and Society**
   - Idea of Culture, Assumptions of Culture

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- Types, Components, Civilization and culture
- Individual and culture. Cultural Ethnocentrism, Cultural Relativism
- Outlook of Pakistani culture
- Global Flows of culture, Homogeneity, Heterogeneity

4. **Social Stratification and Social inequality**
   - Dimensions of inequality, Social class
   - Gender, Race, Religion, Ethnicity, Caste
   - Patterns of social stratification in Pakistan
   - Class, caste system in agrarian society
   - Ascription vs Achievement, Meritocracy
   - Global stratification in modern world, Global patterns of inequality
5. **Personality, Self and Socialization**
   - Concept of self, Personality
   - Nature vs Nurture, Biological vs Social
   - Development of Personality
   - Socialization as a process, Agents of socialization
   - Socialization and self/group identity
6. **Gender and Power**
   - Understanding Gender
   - Social construction of Patriarchy
   - Feminism in Historical context, Gender Debates
   - Gender and Development
   - Gender issues in Pakistani society, Women Participation in politics, economy and education
   - Toward a gender sensitive society, Gender mainstreaming
7. **Pakistan: State, Society, Economy and Polity**
   - Colonialism, colonial legacy, National identity
   - Transformation in Pakistani society: Traditionalism vs Modernism
   - Economy, Informality of Economy, Modern economy and Pakistan
   - Political Economy, Sociology of Economy

Recommended Texts:

1. Giddens, A. (2018). Sociology (11th ed.). UK: Polity Press.
2. Henslin, J. M. (2018). Essentials of Sociology: A Down-to-Earth Approach.(18th Edition) Pearson Publisher.
3. Macionis, J. J. (2016). Sociology (16th ed.). New Jersey: Prentice-Hall.
4. Qadeer, M. (2006) Pakistan - Social and Cultural Transformation in a Muslim Nation.
5. Smelser, N.J. and Swedburg, R., The Handbook of Economic Sociology, Chapter 1 'Introducing Economic Sociology', Princeton University Press, Princeton.
6. Systems of Stratification | Boundless Sociology (no date). Available at: https://courses.lumenlearning.com/boundless-sociology/chapter/systems-of-stratification/
7. Jalal, A. (ed.) (1995) 'The colonial legacy in India and Pakistan', in Democracy and Authoritarianism in South Asia: A Comparative and Historical Perspective. Cambridge: Cambridge University Press (Contemporary South Asia)
8. Zaidi, S. A. (2015) Issues in Pakistan's Economy: A Political Economy Perspective. Oxford University Press. Chapter 26
9. Akhtar, A. S. (2017) The Politics of Common Sense: State, Society and Culture in Pakistan. Cambridge: Cambridge University Press.
10. Smelser, N.J. and Swedburg, R., The Handbook of Economic Sociology, Chapter 1 'Introducing Economic Sociology', Princeton University Press, Princeton.

M.F

URCG-5120	Exploring Quantitative Skills	3(3-0)

This is an introductory-level undergraduate course that focuses on the fundamentals related to the quantitative concepts and analysis. The course is designed to familiarize students with the basic concepts of mathematics and statistics and to develop students' abilities to analyze and interpret quantitative information. Through a combination of theoretical concepts and practical exercises, this course will also enable students cultivate their quantitative literacy and problem solving skills while effectively expanding their academic horizon and breadth of knowledge of their specific major / field of study.

Course Learning Outcomes

By the end of this course, students shall have:

1. Fundamental numerical literacy to enable them work with numbers, understand their meaning and present data accurately;
2. Understanding of fundamental mathematical and statistical concepts;
3. Basic ability to interpret data presented in various formats including but not limited to tables, graphs, charts, and equations etc.

Contents

1. Numerical Literacy:

i. Numbers system and basic arithmetic operations;

ii. Units and their conversions, dimensions, area, perimeter and volume;

iii. Rates, ratios, proportions and percentages;

iv. Types and sources of data;

v. Measurement scales;

vi. Tabular and graphical presentation of data;

vii. Quantitative reasoning exercises using number knowledge.

2. Fundamental mathematical concepts:

i. Basics of geometry (lines, angles, circles, polygons etc.);

ii. Sets and their operations;

iii. Relations, functions, and their graphs;

iv. Exponents, factoring and simplifying algebraic expressions;

v. Algebraic and graphical solutions of linear and quadratic equations and inequalities;

vi. Quantitative reasoning exercises using fundamental mathematical concepts.

3. Fundamental Statistical Concepts:

i. Population and sample;

ii. Measures of central tendency, dispersion and data interpretation;

iii. Rules of counting (multiplicative, permutation and combination);

iv. Basic probability theory;

v. Introduction to random variables and their probability distributions;

vi. Quantitative reasoning exercises using fundamental statistical concepts.

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Recommended Texts

1. Sevilla, A., & Somers, K. (2012). *Quantitative reasoning: tools for today's informed citizen*. New Jersey, John Wiley & Sons.

2. Burzynski, D., & Ellis, W. (2008). *Fundamentals of mathematics*. USA, Saunders College Publishing.

Suggested Readings

1. Zaslow, E. (2020). *Quantitative reasoning: thinking in numbers*. Cambridge, Cambridge University Press.

2. de Mesquita, E. B., & Fowler, A. (2021). *Thinking clearly with data: A guide to quantitative reasoning and analysis*. New Jersey, Princeton University Press.

3. Bennett, J., & Briggs, W. (2019). *Using & understanding mathematics: a quantitative reasoning approach*. Pearson.

4. Rosen, K. H., & Krithivasan, K. (2012). *Discrete mathematics and its applications* (Vol. 6). New York: McGraw-Hill.

5. Chatfield, C. (2018). *Statistics for technology: a course in applied statistics*. Routledge.

6. Lock, R. H., Lock, P. F., Morgan, K. L., Lock, E. F., & Lock, D. F. (2020). *Statistics: Unlocking the power of data*. New Jersey, John Wiley & Sons.

M.F

URCG-5127	Seerat of the Holy Prophet (SAW)	1(1-0)

Seerat of the Holy Prophet مطالعہ سیرت النبی صلی اللہ علیہ وسلم

Course Code : URCG-5127

Title	Description
Semester	
Nature of Course	
No. of C.Hrs.	1(1-0)
Total Teaching weeks	18
Objectives of the Course	۱۔ طلبہ کو مطالعہ سیرت طیبہ کی ضرورت و اہمیت سے آگاہ کرنا ۲۔ تعمیر شخصیت میں مطالعہ سیرت طیبہ کے کردار کو واضح کرنا ۳۔ بعثت نبوی کے موقع پر اقوام عالم کی عمومی صورت حال سے آگاہ کرنا ۴۔ رسول اکرم صلی اللہ علیہ وسلم کی مکی اور مدنی زندگی کا اس طرح مطالعہ کروانا کہ طلباء ان واقعات سے نتائج کا استنباط کر سکیں ۵۔ طلباء کو عہد نبوی کی معاشرت، سیاست، معیشت سے آگاہ کرنا

Course Description

S.No.	Title	Description
1	حضور صلی اللہ علیہ وسلم کے ابتدائی ماحول زندگی	۱۔ حضور صلی اللہ علیہ وسلم کا خاندانی حسب و نسب ۲۔ پیدائش اور ابتدائی تربیت ۳۔ لڑکپن اور جوانی کے حالات زندگی
2	بعثت نبوی کے وقت دنیا کے حالات (۱)	۱۔ بعثت نبوی کے وقت اہم تہذیبیں ۲۔ عرب، مصر، حبشہ، بازنطینی ساسانی
3	بعثت نبوی	۱۔ مکی عہد میں دعوت اسلام
4	بعثت نبوی	۱۔ مدنی عہد میں دعوت اسلام
5	خصائص النبیؐ	آپ بحیثیت پیغامبر امن
6	خصائص النبیؐ	بحیثیت استاد و معلم
7	خصائص النبیؐ	بحیثیت تاجر
8	خصائص النبیؐ	بحیثیت سربراہ ریاست
9	خصائص النبیؐ	ذاتی محاسن اور عالمگیر اثرات

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10	خصائص النبی	ناموسِ رسالت
11	اسوۂ حسنہ اور عصر حاضر	غیر مسلموں سے تعلقات
12	اسوۂ حسنہ اور عصر حاضر	اسوۂ حسنہ کی روشنی میں گھریلو زندگی
13	اسوۂ حسنہ اور عصر حاضر	مستشرقین اور مطالعہ سیرت
15	اسوۂ حسنہ اور عصر حاضر	وطن سے محبت اور سیرت
16	اسوۂ حسنہ اور عصر حاضر	مستشرقین کے اعتراضات اور ان کے جوابات

نصابی کتب

نام کتاب	نام مؤلف	نمبر شمار
السیرۃ النبویۃ	ابن ہشام	1
سیرۃ النبی صلی اللہ علیہ وسلم	مولانا شبلی نعمانی، سید سلیمان ندوی	2
رحمۃ للعالمین	قاضی محمد سلیمان سلمان منصورپوری	3
نبی رحمت صلی اللہ علیہ وسلم	مولانا سید ابو الحسن علی ندوی	4
عہد نبوی کا نظام حکومت	ڈاکٹر یسین مظہر صدیقی	5
انسانِ کامل	ڈاکٹر خالد علوی	6

حوالہ جاتی کتب

نام کتاب	نام مؤلف	نمبر شمار
سیرت سرور عالم صلی اللہ علیہ وسلم	سید ابو الاعلیٰ مودودی	1
الرحیق المختوم	مولانا صفی الرحمن مبارکپوری	2
ضیاء النبی صلی اللہ علیہ وسلم	پیر محمد کرم شاہ الازہری	3
السیرۃ النبویۃ الصحیحۃ	ڈاکٹر اکرم ضیاء العمری	4
اصح السیر	مولانا عبد الرؤف دانا پوری	5

DIMS-5104	Disaster and Sustainable Development	3(2-1)

Course Brief:

This course examines the interplay between disaster management and sustainable development. It focuses on how disasters impact sustainable development goals and how sustainable practices can enhance disaster resilience. Students will explore strategies for integrating disaster risk reduction into development planning and learn about the principles of sustainable development in the context of disaster management.

Course Learning Objectives:

Students will understand the relationship between disaster management and sustainable development, including how disasters affect development goals and how sustainable practices can mitigate disaster impacts. They will learn to integrate disaster risk reduction into development planning, apply sustainable development principles to disaster management, and develop strategies for enhancing community resilience. The course will also address policy implications and practical approaches for achieving sustainable development in disaster-prone areas.

Course Contents:

1. **Introduction to Disaster and Sustainable Development** - Overview of sustainable development principles; understanding the impact of disasters on development goals.
2. **Disaster Impact on Sustainable Development** - Analyzing how disasters affect economic, social, and environmental aspects of sustainability.
3. **Integrating Disaster Risk Reduction into Development** - Strategies for incorporating disaster risk reduction into development planning and policies.
4. **Sustainable Development Principles in Disaster Management** - Applying sustainable development principles to enhance disaster resilience and recovery.
5. **Community Resilience and Sustainability** - Approaches to building community resilience and promoting sustainable practices in disaster management.
6. **Policy and Planning for Disaster and Development** - Examining policy frameworks and planning approaches that integrate disaster management with sustainable development.

Labs: Lab work includes analyzing case studies to understand the impact of disasters on sustainable development, developing plans that integrate disaster risk reduction with development goals, and using simulations to apply sustainable development principles in disaster scenarios. Students also engage in exercises to enhance community resilience and sustainability.

Recommended Texts:

1. Sachs, J. D. (2015). *The Age of Sustainable Development*. Columbia University Press. ISBN: 978-0231173155
2. Undrr (2020). *Making Disaster Risk Reduction Work for the Sustainable Development Goals*. United Nations Office for Disaster Risk Reduction.

Suggested Readings:

1. Mastrorillo, M., et al. (2016). *Sustainable Development and Disaster Risk Reduction*. Routledge. ISBN: 978-1138940795
2. Mastrorillo, M., et al. (2017). *Integrating Disaster Risk Reduction and Sustainable Development*. CRC Press. ISBN: 978-0367334975

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DIMS-5105	Community Based Disaster Risk Management	3(2-1)

Course Brief:
This course focuses on the principles and practices of community-based disaster risk management (CBDRM). It emphasizes the role of local communities in identifying risks, developing risk reduction strategies, and implementing disaster management plans. Students will explore methods for empowering communities, fostering local resilience, and integrating local knowledge into disaster management practices.

Course Learning Objectives:
Students will learn to engage communities in disaster risk management by identifying and assessing local risks, developing community-driven risk reduction strategies, and implementing disaster management plans. They will understand the importance of local knowledge and participation in enhancing resilience and learn how to facilitate community-based approaches to disaster preparedness and response. The course also covers evaluating the effectiveness of community-based initiatives and fostering collaboration among local stakeholders.

Course Contents:

1. **Introduction to Community-Based Disaster Risk Management** - Overview of CBDRM principles and practices; the importance of community involvement in disaster management.
2. **Risk Identification and Assessment** - Methods for identifying and assessing local risks and vulnerabilities.
3. **Developing Community Risk Reduction Strategies** - Creating and implementing community-driven disaster risk reduction plans.
4. **Empowering Communities for Resilience** - Techniques for building local capacity and resilience through community engagement.
5. **Integrating Local Knowledge and Practices** - Using local knowledge and traditional practices in disaster risk management.
6. **Facilitating Community-Based Planning** - Approaches for facilitating community planning sessions and stakeholder collaboration.
7. **Evaluating Community-Based Initiatives** - Assessing the effectiveness of community-based disaster risk management programs and interventions.

Labs: Lab work includes conducting risk assessments within communities, developing and simulating community-based disaster risk reduction plans, and facilitating role-playing exercises to practice community engagement. Students also analyze case studies of successful community.

Recommended Texts:

1. Twigg, J. (2015). *Disaster Risk Reduction: Mitigation and Preparedness*. Routledge. ISBN: 978-0415557701
2. Gaillard, J. C., & Mercer, J. (2012). *Communities and Disasters: Perspectives on Risk, Response, and Recovery*. Routledge. ISBN: 978-0415506587

Suggested Readings:

1. Mitchell, T. (2003). *An Introduction to Community-Based Disaster Risk Management*. Practical Action Publishing. ISBN: 978-1853396054
2. Pelling, M. (2011). *Adaptation to Climate Change: From Resilience to Transformation*. Routledge. ISBN: 978-0415586360

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DIMS-5106	Hydro-meteorological Hazards	3(2-1)

Course Brief:

This course focuses on hydro-meteorological hazards, including floods, hurricanes, and droughts. It explores the causes, impacts, and management strategies for these hazards, emphasizing the role of weather and climate in disaster risk. Students will learn about hazard prediction, risk assessment, and effective mitigation and response techniques specific to hydro-meteorological events.

Course Learning Objectives:

In a course on Geo Hazards, students will learn to define and understand various geo hazards such as Students will gain an understanding of the nature and causes of hydro-meteorological hazards, including floods, hurricanes, and droughts. They will learn to assess the risks associated with these hazards, develop strategies for mitigation and preparedness, and apply techniques for effective response and recovery. The course will also cover the use of weather and climate data in hazard prediction and management.

Course Contents:

1. Introduction to Hydro-Meteorological Hazards - Overview of hydro-meteorological hazards; definitions and classifications of floods, hurricanes, and droughts.
2. Floods - Causes, types, impacts, and flood risk management; floodplain management and mitigation strategies.
3. Hurricanes and Tropical Storms - Formation, tracking, and impact of hurricanes and tropical storms; early warning systems and response strategies.
4. Droughts - Causes and impacts of droughts; drought assessment and management strategies; coping mechanisms.
5. Prediction and Monitoring - Techniques and technologies for predicting hydro-meteorological hazards; use of weather and climate data.
6. Risk Assessment and Mitigation - Assessing risks related to hydro-meteorological hazards; developing and implementing mitigation strategies.
7. Case Studies and Practical Applications - Analysis of past hydro-meteorological events; practical exercises in hazard prediction, response, and recovery.

Labs: Lab work includes analyzing weather and climate data to predict hydro-meteorological hazards, developing flood risk maps, and simulating hurricane and drought scenarios. Students also engage in practical exercises to apply risk assessment and mitigation strategies.

Recommended Texts:

1. Smith, K. (2013). *Environmental Hazards: Assessing Risk and Reducing Disaster* (6th ed.). Routledge. ISBN: 978-0415662601
2. Miller, R. A., & Koren, V. I. (2018). *Hydrometeorological Hazards: Principles and Practice.* Wiley. ISBN: 978-1119287111

Suggested Readings:

1. Burton, I., Kates, R. W., & White, G. F. (1993). *The Environment as Hazard.* Guilford Press. ISBN: 978-0898622164
2. Davis, M. C., & Kaufmann, A. (2021). *Understanding Hydrometeorological Disasters.* Cambridge University Press. ISBN: 978-1108409526

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URCG-5128	Pakistan Studies	2(2-0)

This course is designed to provide students with a comprehensive exploration of Pakistan's identity, spanning geographical, historical and cultural dimensions. It delves into the diverse landscape, ancient civilizations, and rich cultural heritage that define Pakistan. Moreover, it examines the socio-cultural and political transformations in Pakistan over time including democratic transitions and military interventions. The aim of this course is to inculcate in students a nuanced understanding of Pakistan's past, present, and potential future trajectories, enabling them to critically evaluate the complex dynamics shaping the nation's development.

Course Learning Outcomes

By the end of this course, student will be able to:

1. Have enhanced knowledge of the geographical, historical and political aspects of Pakistan.
2. Understand the society and cultural of Pakistan.
3. Understand and explain the scio-economics developments in Pakistan.
4. Explore contemporary issues and challenges faced by Pakistan and their implications for the future.

Contents

1. Introduction to Pakistan:

- Geographical location and significance.
- Historical background: Ancient civilizations in the region.
- Factors leading to the creation of Pakistan

2. Political History of Pakistan:

- Formative phase
- Military interventions and democratic transitions.

3. Geography of Pakistan:

- Physiography: Mountains, plains, plateaus, deserts, valleys and coastal areas.
- River system: Indus river and its tributaries;
- Climatic regions of Pakistan.

4. Society and Culture of Pakistan:

- Socio- cultural diversity.
- Language and literature of Pakistan.

5. Economics Development of Pakistan:

- Agriculture and industrial sectors of Pakistan.
- Economic challenges of Pakistan.

6. Contemporary Issues:

- Foreign relations of Pakistan.
- Security challenges: terrorism, extremism, regional conflicts.
- Environmental problems and sustainable development (SDGs).
- Media and social change.

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SUGGESTED READING MATERIALS

1. "Jinnah of Pakistan" by Stanley Wolpert
2. "The sole Spokesman: Jinnah, the Muslim League, and the Demand for Pakistan" by Ayesha Jalal
3. "The struggle for Pakistan" by Ishtiaq Hussain Qureshi
4. "Pakistan, the Formative Phase, 1857-1948" by Khalid B. Sayeed
5. "Pakistan Studies: A Book of Readings" by Sikandar Hayat
6. "Constitutional and Political History of Pakistan" by Hamid Khan
7. "Trek to Pakistan" by Ahmad Saeed and Kh. Mansur Sarwar
8. "Pakistan: A Modern History" by Ian Talbot
9. "Politics in Pakistan: The Nature and Direction of Change" by Khalid B. Sayeed
10. "Physical Geography of Pakistan" by Umar Jahangir
11. "A Geography of Pakistan: Environment, people, and Economy" by Fazle Karim Khan
12. "Pakistan's Foreign Policy: An Historical Analysis" by S.M. Burke
13. "Separatism in East Pakistan" by Rizwan Ullah Kokab
14. "Being Pakistani: Society, Culture and the Arts" by Raza Rumi
15. "Pakistani's Culture Heritage: Socio-Economic and Technological Aspects" edited by Abdul Jabbar Khan
16. "Language and Politics in Pakistan" by Tariq Rahman
17. Sociology" by Horton and Hunt
18. "Pakistan in the Twentieth Century: A Political History" by Lawrence Ziring
19. "Economic Development of Pakistan" by Ishrat Husain
20. "Issues in Pakistan's Economy" by S. Zaidi

URCG- 5119	Expository Writing	3(3-0)

This course prepares undergraduates to become successful writers and readers of English. The course helps students develop their fundamental language skills with a focus on writing so that they can gain the confidence to communicate in oral and written English outside the classroom. The course is divided into five units and takes a Project-based Learning approach. Unit themes target the development of 21st century skills and focus on self-reflection and active community engagement. The course completion will enable the students to develop communication skills as reflective and self-directed learners. They will be able to intellectually engage with different stages of writing process, and develop analytical and problem-solving skills to address various community-specific challenges.

Course Contents:

1. Self-Reflection
   - Introduction to the basics of the writing process
   - Introduction to the steps of essay writing
   - Prewriting activities: Brainstorming, listing, clustering and freewriting
   - Practicing Outlining of the essay
2. Personalized Learning
   - Learning Process, Learning Styles, Goal Setting and Learning Plan
3. Oral Presentation
   - Structure and Significance, Content Selection and Slide Presentation, Peer Review
4. Critical Reading Skills
   - Introducing Authentic Reading (Dawn and non-specialist academic books/texts)
   - Reading Strategies and Practice: Skimming, scanning, SQW3R, Annotating, Detailed reading and note-taking, Standard Test Practice: TOEFL and IELTS, Model Review Reports and Annotated Bibliographies
5. Community Engagement
   - Student-led brainstorming on local versus global issues, Identifying research problems
   - Drafting research questions, Drafting interview/survey questions for community research (in English or L1)
   - Engaging students in Critical reading, Presenting interview/ survey information, Field work
   - Writing Community Engagement Project
6. Letter to the Editor
   - Types of letters, Format and purpose of letter to the editor, Steps in writing letter-to-editor

Recommended Texts:

1. Bailey, S. (2011). Academic writing: A handbook for international students (3rd ed.). New York: Routledge.
2. Swales, J. M., & Feak, C. B. (2012). *Academic writing for graduate students: Essential tasks and skills* (3rd ed.). Ann Arbor: The University of Michigan Press.

Suggested Readings:

1. Cresswell, G. (2004). *Writing for academic success*. London: SAGE.
2. Johnson-Sheehan, R. (2019). *Writing today*. Don Mills: Pearson.
3. Silvia, P. J. (2019). *How to write a lot: A practical guide to productive academic writing*. Washington: American Psychological Association.

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URCG-5121	Tools for Quantitative Reasoning	3(3-0)

This is a sequential undergraduate course that focuses on logical reasoning supported with mathematical and statistical concepts and modeling / analysis techniques to equip students with analytical skills and critical thinking abilities necessary to navigate the complexities of modern world. The course is designed to familiarize students with the quantitative concepts and techniques required to interpret and analyze numerical data and to inculcate ability in students the logical reasoning to construct and evaluate arguments, identify fallacies, and think systematically. Keeping the pre-requisite course of Quantitative reasoning (I) as its base, this course will enable students further their quantitative. Logical and critical reasoning abilities to complement their specific major field of study.

Course Learning Outcomes

By the end of the course, student shall have:

1. Understanding of logic and logical reasoning:
2. Understanding the basic quantitative Modeling and Analyses.
3. Logical reasoning skills and abilities to apply them to solve quantitative problems and evaluate arguments;
4. Ability to critically evaluate quantitative information to make evidence based decisions through appropriate computational tools.

Contents

1. Logic, Logical and Critical Reasoning:

i. Introduction and importance of logic,

ii. Introductive, deductive and abductive approaches of reasoning,

iii. Propositions, arguments (valid; invalid), logical connectives, truth tables and propositional equivalences,

iv. Logical fallacies,

v. Venn Diagrams,

vi. Predicates and quantifiers,

vii. Quantitative reasoning exercises using logical reasoning concepts and techniques.

2. Mathematical Modeling and Analyses:

i. Introduction to deterministic models,

ii. Use of linear function for modeling in real-world situations,

iii. Modeling with the system of linear equation and linear solutions,

iv. Elementary introduction to derivatives in mathematical modeling,

v. Linear and exponential growth and decay models,

vi. Quantitative reasoning exercises using mathematical modeling.

3. Statistical Modeling and Analyses:

i. Introduction to probabilistic models,

ii. Bivariate analysis, scatter plots,

iii. Simple linear regression model and correlation analysis,

iv. Basics of estimation and confidence interval,

v. Testing of hypothesis (z-test; t-test),

vi. Statistical inference in decision making,

vii. Quantitative reasoning exercise using statistical modeling.

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Recommended Texts

1. Bennett, J., & Briggs, W. (2019). *Using & understanding mathematics: a quantitative reasoning approach*. Pearson.

2. Rosen, K. H., & Krithivasan, K. (2012). *Discrete mathematics and its applications* (Vol. 6). New York: McGraw-Hill.

Suggested Readings

1. Epp, S. S. (1990). *Discrete mathematics with applications*. Wadsworth Publ. Co..

2. Budnick, F. S., Quinn, S., Bowser, K., & Flaherty, E. H. (1993). *Applied mathematics for business, economics, and the social sciences*. New York: McGraw-Hill.

3. Bluman, A. (2014). *Elementary Statistics: A step by step approach 9e*. McGraw Hill.

4. Mann, P. S. (2007). *Introductory statistics*. John Wiley & Sons.

5. Babones, S. (2013). Applied statistical modeling. *(No Title)*.

6. Green, S. W., Wolf, I.k., Stewrat, B. W. (2022). SAT Study Guide Premium. Barrons

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URCG-5122	Ideology and Constitution of Pakistan	2(2-0)

Course Description:
This course focuses on ideological background of Pakistan. The course is designed to give a comprehensive insight about the constitutional developments of Pakistan. Starting from the Government of India Act, 1935 till to date, all important events leading to constitutional developments in Pakistan will be the focus of course. Failure of the constitutional machinery and leading constitutional cases on the subject. Moreover, students will study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan. It will also cover the entire Constitution of Pakistan 1973. However, emphasis would be on the fundamental rights, the nature of federalism under the constitution, distribution of powers, the rights and various remedies, the supremacy of parliament and the independence of judiciary

Outline:

- **Ideology of Pakistan**

Ideological rationale with special reference to Sir Syed Ahmed Khan, Allama Muhammad Iqbal and Quaid-e-Azam Muhammad Ali Jinnah.
Two Nation Theory and Factors leading to Muslim separatism.

- **Constitutional Developments**

Salient Feature of the Government of India Act 1935
Salient Feature of Indian Independence Act 1947
Objectives Resolution
Salient Feature of the 1956 Constitution
Developments leading to the abrogation of Constitution of 1956
Salient features of the 1962 Constitution
Causes of failure of the Constitution of 1962
Comparative study of significant features of the Constitution of 1956, 1962 and 1973

- **Fundamental rights**
- **Principles of policy**
- **Federation of Pakistan**
  President
  Parliament
  The Federal Government
- **Provinces**
  Governors
  Provincial Assemblies
  The Provincial Government
- **The Judicature**
  Supreme Court
  High Courts
  Federal Shariat Courts
  Supreme Judicial Council
  Administrative Courts and tribunals
- **Islamic Provisions in Constitution**
- **Significant Amendments of Constitution of Pakistan 1973**

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Recommended Books:

1. Constitutional and Political History of Pakistan by Hamid Khan

2. Mahmood, Shaukat and Shaukat, Nadeem. Constitution of the Islamic Republic of Pakistan, 3rd re edn. Lahore: Legal Research Centre, 1996.

3. Munir, Muhammad. Constitution of the Islamic Republic of Pakistan: Being a Commentary on the Constitution of Pakistan, 1973. Lahore, Law Pub., 1975.

4. Rizvi, Syed Shabbar Raza. Constitutional Law of Pakistan: Text, Case Law and Analytical Commentary. 2nd re edn. Lahore: Vanguard, 2005.

5. The Text of the Constitution of the Islamic Republic of Pakistan, 1973 (as amended).

6. Fundamental Laws of Pakistan by A.K. Brohi

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URCG-5130

Model Course Outline
for the Course Understanding of Quran – II

Course Title: Understanding of Quran – II
Course Book: Muallim ul Quran (Volume 3, 4 & 5) by Dr Ubaid ur Rahman
Credit Hours: 1 (0-1)
Contact Hours: 3 per week
Weeks: 15-16 (45-48 hours)

Course Learning Outcomes:
By the end of this course, students will be able to:

1. Directly comprehend hundreds of Quranic sentences & verses
2. Understand at least 80 to 85 % of each page of the holy Quran.
3. Understand common verses across different Quranic topics.
4. Achieve proficiency in the basic and advance linguistic aspects of the Arabic language.
5. Understand the difference between Quranic verbs in various forms, such as present, past and imperative.
6. Develop the ability to understand long verses of the holy Quran independently and then comprehend their interpretation.

Provision of material, content and books:

- **Paper book:** All volumes are available in printed book form.
- **Tutorial videos:** Teaching video of each lesson available on YouTube
- **Confirmation Videos:** A complete series of confirmation videos of all lessons is available in which the student can confirm his answers.
- **A flipbook:** A flipbook edition is also accessible.
- **Helping material:** Helping material for the teachers like quizzes, question papers and images is available on website.

Course Outline:

Weeks	Lectures	Units	Lessons	Assignments/Home Task	
1.	1.	6	6	Understanding & Translation of Verses	Present Tense صيغة جمع مذكر غائب مثل يعبدون
	2	6	7-8	Understanding & Translation of Verses	Present Tense صيغة جمع مذكر غائب مثل يعبدون
2.	1.	6	9-10	Understanding & Translation of Verses	Present Tense صيغة مفرد مذكر مخاطب (تعبد) (جمع مذكر مخاطب (تعبدون))
	2.	6	11-12	Understanding & Translation of Verses	Present Tense صيغة جمع مذكر مخاطب (تعبدون)

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					صيغة المتكلم (أعبد)
3.	1.	6	13	Understanding & Translation of Verses	Present Tense صيغة جمع المتكلم (نعبد)
		6	14-15	Understanding & Translation of Verses	Negative Imperative صيغة المفرد وصيغة الجمع , لا تعبد، لا تعبدوا
4.	1.	6	16-17	Understanding & Translation of Verses	Conditional Sentences & masdar moawal (مصدر مرزل)
	2.	6	18-19	Understanding & Translation of Verses	Laam ottaleel (لام التعليل) & Laam ul Jhood(لام الجحود)
5.	1.	6	20-21	Understanding & Translation of Verses	Present with object pronouns & Passive Voice
	2.	6	Revision (Unit 6)	Quiz	
6.	1.	Unit 7	1 (sec 1-3)	Understanding & Translation of Verses	Past Tense صيغة المفرد الغائب
	2.	6	1 (Sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة المفرد للمائب
7.	1.	6	1 (Sec 5-6)	Understanding & Translation of Verses	Past Tense صيغة المفرد للمائب
	2.	6	1 (Sec 7-9)	Understanding & Translation of Verses	Past Tense صيغة المفرد للمائب
8.	1.	7	Revision	Understanding & Translation of Verses QUIZ	Past Tense صيغة المفرد للمائب
		MID TERM			
9.	1.	7	2 (sec 1-2)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
	2.	7	2 (sec 3)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
10.	1.	7	2 (sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
	2.	7	2 (sec 6-7)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
11.	1.	7	3 (sec 1-2)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عبدنا

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	2.	7	3 (sec 2-3)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عبدنا
12.	1.	7	3 (sec 3-4)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عبدنا
	2.	7	3 (sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عبدنا
13.	1.	7	4 (sec 1-2-3)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمخاطب عبدتم
	2.	7	4 (sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمخاطب عبدتم
14.	1.	7	5-6	Understanding & Translation of Verses Quiz	Past Tense صيغة المتكلم والمخاطب عبدتُ ، عبدتَ
	2.	7	7	Understanding & Translation of Verses	Past Tense صيغة المؤنث للغائب عبدتْ
15.	1.	7	8	Understanding & Translation of Verses	Passive Voice (Past Tense) فعل مجهول للمفرد
	2.	7	9	Understanding & Translation of Verses	Passive Voice (Past Tense) فعل مجهول الجمع
16.	1	8	1-4	Understanding & Translation of Verses	Imperative Verb for singular فعل الأمر للمفرد
	2.	7	5-8	Understanding & Translation of Verses	Imperative Verb for plural فعل الأمر للجمع

URCG-5132	Ethics – II	1 (0-1)

Ethics-II

URCG-5132

1 (0-1)

1-Course Description

The course *Ethics-II* is designed to provide students with a deeper understanding of ethical principles and practices from both Semitic and non-Semitic religions, as well as their application in professional and social contexts. Students will engage with Jewish, Christian, Islamic, Hindu, Buddhist, Sikh, Confucian, and Jain ethical traditions. The course emphasizes moral reasoning, decision-making, tolerance, and peacebuilding. It aims to cultivate an inclusive, humanistic, and holistic approach towards ethical living and interfaith engagement.

2- Learning Objectives

The course objectives are to:

1. Understand the fundamental principles and theories of ethics.
2. Introduce the ethical and moral teachings of Judaism, Christianity, Islam, and Hinduism.
3. Explore the ethical teachings of non-Semitic religions such as Buddhism, Sikhism, Confucianism, and Jainism.
4. Develop critical thinking skills to evaluate ethical arguments and theories.
5. Promote ethical leadership and interfaith harmony.

3- Learning Outcomes

By the end of this course, students will be able to:

1. Identify and analyze major ethical theories and teachings from world religions.
2. Understand the role of religions in improving moral values and social behavior.
3. Demonstrate ethical decision-making in various personal and professional contexts.
4. Recognize the impact of ethical decisions on individuals, communities, and society.
5. Apply skills of ethical leadership, including communication, conflict resolution, and inclusive engagement.

4-Course Structure

1. Interactive lectures, Group discussions and debates
2. Reflection papers and presentations
3. Assignments and Quiz

Course Contents

Unit 1: Ethical Teachings of Semitic Religions

- Judaism and its ethical teachings
- Christianity and its ethical teachings
- Islam and its ethical teachings

Unit 2: Ethical Teachings of Non-Semitic Religions

- Hinduism and its ethical teachings
- Sikhism and Buddhism: ethical values and practices
- Confucian and Jain ethical traditions

Unit 3: Professional Ethics

- Ethics for students and teachers
- Ethics in doctor–patient relationships
- Ethics in trader–customer interactions

Unit 4: Concept and Significance of Tolerance

- Definition, need, and importance of tolerance
- Teachings of Semitic religions on tolerance and their contemporary relevance
- Teachings of non-Semitic religions on tolerance and their contemporary relevance

Unit 5: Foundational Values and Ethics for Peacebuilding in Society

- Respect for sacred scriptures, personalities, places of worship, and religious symbols
- Promotion of tolerance and broadmindedness
- Encouragement of dialogue and harmony
- Benevolence towards humanity
- Establishment of justice and fairness
- Patience, forbearance, and forgiveness

Textbook

- Kidder, R. M. (2009). *How Good People Make Tough Choices: Resolving the Dilemmas of Ethical Living*. Harper.

Suggested Readings

1. Barash, D. P., & Webel, C. P. (2014). *Peace and Conflict Studies*. Sage.
2. Smart, N. (1998). *The World's Religions*. Cambridge University Press.
3. Nasr, S. H. (2003). *The Heart of Islam: Enduring Values for Humanity*. HarperOne.
4. Sharma, A. (2006). *Hindu Ethics: Purity, Abortion, and Euthanasia*. SUNY Press.
5. Harvey, P. (2000). *An Introduction to Buddhist Ethics: Foundations, Values and Issues*. Cambridge University Press.
6. Coward, H., & Perkinson, J. (2013). *A Cross-Cultural Dialogue on Ethical Leadership*. Wilfrid Laurier University Press.
7. Confucius (1998). *The Analects*. Oxford University Press.

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DIMS-5107	Geo-Hazards	3(2-1)

Course Brief:

This course provides a comprehensive exploration of natural geo-hazards, focusing on understanding, assessing, and managing risks associated with geological processes. Students will learn about seismic, volcanic, landslide, tsunami, and flood hazards, with an emphasis on the mechanisms that cause these events and their impact on human environments. The course covers methods for hazard assessment, risk mitigation strategies, and the influence of human activities on increasing or reducing geo-hazard risks. Through case studies, the course also examines past events, the lessons learned, and how climate change may alter future geo-hazard dynamics. By the end of the course, students will be equipped with the knowledge to evaluate and respond to geo-hazards effectively.

Course Learning Objectives:

In a course on Geo Hazards, students will learn to define and understand various geo hazards such as earthquakes, volcanic eruptions, landslides, tsunamis, and floods, and the geological processes behind them. They will evaluate the risks and impacts of these hazards on communities and environments, study historical and current events to identify patterns, and apply mitigation strategies to reduce their effects. The course will cover monitoring and early warning systems, develop response and recovery plans, and emphasize integrating geo hazard considerations into sustainable development. Additionally, students will engage in research and innovative practices to enhance hazard management and prediction.

Course Contents:

1. Introduction to Geo-Hazards- Overview of geo-hazards and their significance.
2. Seismic Hazards: Earthquakes- fault mechanics, and seismic risk assessment.
3. Volcanic Hazards- Types of volcanic eruptions and associated risks.
4. Landslide Hazards- Causes, types, and risk management of landslides.
5. Tsunami Hazards-Generation, impact, and mitigation of tsunamis.
6. Flood Hazards- Flood types, causes, and management strategies.
7. Human Interaction and Geo-Hazards- Urbanization's effects on geo-hazards.
8. Hazard Assessment and Risk Management- Techniques for hazard mapping and risk reduction.
9. Case Studies and Lessons Learned- Analysis of past geo-hazard events and responses.
10. Geo-Hazards in the Context of Climate Change- Impact of climate change on geo-hazards.
11. Future Trends in Geo-Hazard Research and Management- Advances in hazard prediction and policy.

Labs: In the lab, students can analyze seismic data using seismographs to assess earthquake risks and create physical models to simulate volcanic eruptions and lava flows.

Recommended Texts:s

1. Hyndman, D., & Hyndman, D. (2019). Natural Hazards and Disasters (3rd ed.). Cengage Learning. ISBN: 978-1305109792.
2. Williams, M. W. E. (2014). Introduction to Geohazards. Springer. ISBN: 978-3642374640.
3. Abbott, P. L. (2005). Natural Disasters: Causes, Effects, and Solutions. W.H. Freeman. ISBN: 978-0716789775.

Suggested Readings

1. Ely, G. (2017). *Geohazards: A Field Guide*. Geological Society of London. ISBN: 978-1786202507.
2. Gorum, T., & Wesson, R. L. (2020). *Tsunamis: Case Studies and Lessons Learned*. Springer. ISBN: 978-3030291244

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DIMS-5108	Complex & Biological Hazards	3(2-1)

Course Brief:

This course explores complex and biological hazards, including infectious diseases, bioterrorism, and environmental risks. Students will analyze their impacts, risk assessment methods, and management strategies through case studies and research projects. Key topics include prevention, response strategies, and the role of public health and policy. Recommended texts are "Biological Hazards: Assessment, Prevention, and Control" by Gosselin and Pritchard, and "Complex Disasters: How to Manage and Prepare for Catastrophic Events" by Williams and McCoy.

Course Learning Objectives:

In this course, students will learn to identify and classify complex and biological hazards, analyze their mechanisms and impacts, and develop risk assessment strategies. They will create and evaluate management and response plans, explore the roles of public health policies and international cooperation, and engage in research projects to apply their knowledge practically.

Course Contents:

1. Introduction: Definitions, classifications, and key concepts of complex and biological hazards.
2. Mechanisms-Disease transmission, epidemiology, and bioterrorism.
3. Risk Assessment- Methods and case studies for evaluating hazard risks and impacts.
4. Management- Prevention, control, response planning, and public health interventions.
5. Policy- Role of government and international cooperation in hazard management.
6. Research-Analysis of specific hazards and lessons from case studies.

Labs: In the lab, students can simulate disease outbreaks to test containment strategies and analyze biological samples for pathogens using microbiological techniques.

Recommended Texts:

1. Gosselin, D. A., & Pritchard, J. J. (2006). Biological hazards: Assessment, prevention, and control. CRC Press. ISBN 978-1566706338.
2. Yoe, C. (2014). Principles of risk analysis: Decision making in complex and uncertain environments. CRC Press. ISBN 978-1482220937.

Suggested Reading:

1. Timbrell, J. (2014). Principles of biochemical toxicology (4th ed.). CRC Press. ISBN 978-0367332117.
2. Schreiber, W. M., & Schreiber, B. D. (2012). Biological warfare and terrorism: A guide for health care providers. Pearson. ISBN 978-0137076686.

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DIMS-5109	Emergency Management	3(2-1)

Course Brief:

This course provides a comprehensive overview of emergency management principles, including preparedness, response, recovery, and mitigation strategies. Students will explore the roles and responsibilities of emergency management professionals, analyze case studies of past disasters, and develop skills in planning, risk assessment, and crisis communication. The course emphasizes the importance of coordination among government agencies, organizations, and communities in effectively managing emergencies and disasters.

Course Learning Objectives:

In this course, students will learn the fundamentals of emergency management, including preparedness, response, recovery, and mitigation. They will analyze case studies to extract best practices, develop emergency plans, and implement risk assessment methods. The course emphasizes effective coordination with stakeholders and crisis communication strategies to manage and respond to disasters effectively.

Course Contents:

1. Introduction- Overview of emergency management phases: preparedness, response, recovery, and mitigation.
2. Risk Assessment- Methods for assessing risks and developing emergency plans.
3. Case Studies-Analysis of disaster case studies for best practices and lessons learned.
4. Coordination- Roles and strategies for effective collaboration among stakeholders.
5. Crisis Communication -Development of public information strategies during emergencies.
6. Tools and Techniques- Use of tools and technologies for emergency management.

Labs: In the lab, students can simulate disaster scenarios to test response strategies and develop emergency plans using real-world data. They can also conduct risk assessments and practice crisis communication through role-playing exercises.

Recommended Texts:

1. Haddow, G. D., Bullock, J. A., & Coppola, D. P. (2016). Introduction to emergency management (5th ed.). Elsevier. ISBN 978-0128030345.
2. Waugh, W. L. Jr., & Tierney, K. J. (2017). Emergency management: Principles and practice for local government (3rd ed.). CQ Press. ISBN 978-1483383483.

Suggested Readings:

1. McEntire, D. A. (2015). Disaster response and recovery: Strategies and tactics for resilience. Springer. ISBN 978-0826198476.
2. Fagel, M. J. (2019). The disaster recovery handbook: A guide for professionals. Routledge. ISBN 978-0367334881.

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URCG-5114	Basic Science	3 (2-1)

Life, its characteristics, natural science, biology and its branches; Importance of Flora & Fauna in biodiversity; Importance of Natural Compounds in daily life, medicine and human health; Latest developments in natural sciences (Biotechnology); Ecosystem and its components; Environment and its components; Pollutants and their effect on the environment (Greenhouse effect, global warming, acid rains, water pollution and ozone depletions etc); Introduction to micro-organism and its types (bacteria, fungi, viruses)

Practical:

1: Field Survey of Flora & Fauna and their identification
2: Study of herbarium
3: Study of Museum

Recommended Texts:

1. Keddy, P.A. (2017). *Plant ecology origins, processes, consequences.* Cambridge, University Press.
2. Canadell, J.G., Diaz, S., Heldmaier, G., Jackson, R.B., Levia, D.F., Schulze, E.D. & Sommer, U. (2019). *Ecological studies.* Springer.
3. Bhat, S.V., Nagasampagi, B.A. & Sirakumar, M. (2006). Chemistry of Natural Products. Springer Science
4. De, A.K. (2019). *Environmental Chemistry.* New Age International Press

Suggested Readings:

1. Fath, B. (2018). *Encyclopedia of ecology.* Elsevier.
2. Ajith, H .. Urmas. P., Pastur, G. M & Iversion L. R. (2018). *Ecosystem services from forest landscpes:* broadsclaes consideration. 1st Edition. Springer International Publishing AG.
3. Xu, R., Ye, Y. & Zhao, W. (2011). *Introduction to Natural Product Chemistry.* CRC Press
4. Tayler, D.J., Green, N.P.O. & Stout, G.W. (1997). *Biological Science* 1&2. Cambridge University Press
5. Tayler, M.R., Simon, E.J., Dickey, D.J. & Hogan, K.A. (2020). *Campbell Biology: Concepts & Connections* (10th Edition). Pearson

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URCG-5124	Entrepreneurship	2(2-0)

This course addresses the unique entrepreneurial experience of conceiving, evaluating, creating, managing, and potentially selling a business idea. The goal is to provide a solid background with practical application of important concepts applicable to the entrepreneurial environment. Entrepreneurial discussions regarding the key business areas of finance, accounting, marketing and management include the creative aspects of entrepreneurship. The course relies on classroom discussion, participation, the creation of a feasibility plan, and building a business plan to develop a comprehensive strategy for launching and managing a new venture.

Course Learning Objectives

1. To enhance the 'entrepreneurial intentions' of the students by improving their natural willingness to start a business.
2. To understand the process of entrepreneurship and learn the ways to manage it by working individually in the class and in the form of groups outside the class to conduct field assignments.
3. To educate the students about the practical underpinnings of the entrepreneurship with the aid of practical assignments and idea pitching.

Course Contents:

1. **Background:** What is an Organization, Organizational Resources, Management Functions, Kinds of Managers, Mintzberg's Managerial Roles.
2. **Forms of Business Ownership:** The Sole proprietorship, Partnership, Joint Stock Company
3. **Entrepreneurship:** The World of the Entrepreneur, what is an entrepreneur? The Benefits of Entrepreneurship, The Potential Drawbacks of Entrepreneurship, Behind the Boom: Feeding the Entrepreneurial Fire.
4. **The Challenges of Entrepreneurship:** The Cultural Diversity in Entrepreneurship, The Power of "Small" Business, Putting Failure into Perspective, The Ten Deadly Mistakes of Entrepreneurship, How to Avoid the Pitfalls, Idea Discussions & Selection of student Projects, Islamic Ethics of Entrepreneurship.
5. **Inside the Entrepreneurial Mind:** From Ideas to Reality: Creativity, Innovation, and Entrepreneurship, Creativity – Essential to Survival, Creative Thinking, Barriers to Creativity, How to Enhance Creativity, The Creative Process, Techniques for Improving the Creative Process, Protecting Your Ideas, Idea Discussions & Selection of student Projects.
6. **Products and technology, identification opportunities**
7. **Designing a Competitive Business Model and Building a Solid Strategic Plan:** Building a strategic plan, Building a Competitive Advantage, The Strategic Management Process, Formulate strategic options and select the appropriate strategies, Discussion about execution of Students' Project.
8. **Conducting a Feasibility Analysis and Crafting a Winning Business Plan:** Conducting a Feasibility Analysis, Industry and market feasibility, Porter's five forces model, Financial feasibility analysis. Why Develop a Business Plan, The Elements of a Business Plan, What Lenders and Investors Look for in a Business Plan, Making the Business Plan Presentation.
9. **Building a Powerful Marketing Plan:** Building a Guerrilla Marketing Plan, Pinpointing the Target Market, Determining Customer Needs and Wants Through Market Research. Plotting a Guerrilla Marketing Strategy: How to Build a Competitive Edge, Feed Back & Suggestions on Student Project, Islamic Ethics for Entrepreneurial Marketing
10. **E-Commerce and the Entrepreneur:** Factors to Consider before Launching into E-Commerce, Ten Myths of E-Commerce, Strategies for E-Success, Designing a Killer Web Site, Tracking Web Results, Ensuring Web Privacy and Security, Feed Back & Suggestions on Student Project.
11. **Pricing Strategies:** Three Potent Forces: Image, Competition, and Value, Pricing Strategies and Tactics, Pricing Strategies and Methods for Retailers, The Impact of Credit on Pricing.

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12. **Attracting Venture Capitalist:** Projected Financial Statements, Basic Financial Statements, Ratio Analysis, Interpreting Business Ratios, Breakeven Analysis, Feed Back &Suggestions on Student Project,
13. **Idea Pitching:** Formal presentation, 5-minutes pitch, funding negotiation and launching.

Recommended Texts:

1. Scarborough, N. M. (2011). *Essentials of entrepreneurship and small business management.* Publishing as Prentice Hall, One Lake Street, Upper Saddle River, New Jersey 07458..

Suggested Readings:

1. Burstiner, I. (1989). *Small business handbook.* Prentice Hall Press.

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URCG-5125	Civics and Community Engagement	2(2-0)

Course Description:

The Civics and Community Engagement course is designed to provide students with an understanding of the importance of civic participation, culture and cultural diversity, basic foundations of citizenship, group identities and the role of individuals in creating positive change within their communities. The course aims at developing students' knowledge, skills and attitudes necessary for active and responsible citizenship.

Learning outcomes:

After completing this course, students will be able to

- Understand the concepts of civic engagement, community development, and social responsibility.
- Understand rights and responsibilities of citizenship
- Understand cultural diversity in local and global context
- Analyze the significance of civic participation in promoting social justice, equity, and
- democracy.
- Examine the historical and contemporary examples of successful civic and community engagement initiatives.
- Identify and assess community needs, assets, and challenges to develop effective strategies for community improvement.
- Explore the ethical implications and dilemmas associated with civic and community engagement.
- Develop practical skills for effective community organizing, advocacy, and leadership.
- Foster intercultural competence and respect for diversity in community engagement efforts.
- Collaborate with community organizations, stakeholders, and fellow students to design and implement community-based projects.
- Reflect on personal growth and learning through self-assessment and critical analysis of community engagement experiences.

Course Content:

Introduction to Civics & Community Engagement

- Overview of the course: Civics & Community Engagement
- Definition and importance of civics
- Key concepts in civics: citizenship, democracy, governance, and the rule of law
- Rights and responsibilities of citizens

Citizenship and Community Engagement

- Introduction to Active Citizenship: Overview of the Ideas, Concepts, Philosophy and Skills
- Approaches and Methodology for Active Citizenship

Identity, Culture, and Social Harmony

- Concept and Development of Identity, Group identities
- Components of Culture, Cultural pluralism, Multiculturalism, Cultural Ethnocentrism, Cultural relativism, Understanding cultural diversity, Globalization and Culture, Social Harmony,
- Religious Diversity (Understanding and affirmation of similarities & differences)
- Understanding Socio-Political Polarization
- Minorities, Social Inclusion, Affirmative actions

Multi-cultural society and inter-cultural dialogue

- Inter-cultural dialogue (bridging the differences, promoting harmony)
- Promoting intergroup contact/ Dialogue
- Significance of diversity and its impact
- Importance and domains of inter-cultural dialogue

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Active Citizen: Locally Active, Globally Connected

- Importance of active citizenship at national and global level
- Understanding community
- Identification of resources (human, natural and others)
- Utilization of resources for development (community participation)
- Strategic planning, for development (community linkages and mobilization)

Human rights, constitutionalism and citizens' responsibilities

- Introduction to Human Rights
- Human rights in constitution of Pakistan
- Public duties and responsibilities
- Constitutionalism and democratic process

Social Institutions, Social Groups, Formal Organizations and Bureaucracy

- Types of Groups, Group identities, Organizations
- Bureaucracy, Weber's model of Bureaucracy
- Role of political parties, interest groups, and non-governmental organizations

Civic Engagement Strategies

- Grassroots organizing and community mobilization
- Advocacy and lobbying for policy change
- Volunteerism and service-learning opportunities

Social issues/Problems of Pakistan

- Overview of major social issues of Pakistani society

Social Action Project

Recommended Books:

1. Kennedy. J. K., & Brunold, A. (2016). Regional context and Citizenship education in Asia and Europe. New Yourk: Routledge, Falmer.
2. Henslin, James M. (2018). Essentials of Sociology: A Down to Earth Approach (13th ed.). New York: Pearson Education
3. Macionis, J. J., & Gerber, M.L. (2020). Sociology. New York: Pearson Education

Suggested Readings:

1. Glencoe McGraw-Hill. (n.d.). Civics Today: Citizenship, Economics, and Youth.
1. Magleby, D. B., Light, P. C., & Nemacheck, C. L. (2020). Government by the People (16th ed.). Pearson.
2. Sirianni, C., & Friedland, L. (2005). The Civic Renewal Movement: Community-Building and Democracy in the United States. Kettering Foundation Press.
3. Bloemraad, I. (2006). Becoming a Citizen: Incorporating Immigrants and Refugees in the United States and Canada. University of California Press.
4. Kuyek, J. (2007). Community Organizing: Theory and Practice. Fernwood Publishing.
5. DeKieffer, D. E. (2010). The Citizen's Guide to Lobbying Congress. TheCapitol.Net.
6. Rybacki, K. C., & Rybacki, D. J. (2021). Advocacy and Opposition: An Introduction to Argumentation (8th ed.). Routledge.
7. Kretzmann, J. P., & McKnight, J. L. (1993). Building Communities from the Inside Out: A Path Towards Finding and Mobilizing a Community's Assets. ACTA Publications.
8. Patterson, T. E. (2005). Engaging the Public: How Government and the Media Can Reinvigorate American Democracy. Oxford University Press.
9. Love, N. S., & Mattern, M. (2005). Doing Democracy: Activist Art and Cultural Politics. SUNY Press.

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DIMS-5110	Disaster Risk Management	3(2-1)

Course Brief:

This course focuses on the principles and practices of disaster risk management, emphasizing strategies to minimize risks and enhance resilience to disasters. Students will learn to assess and analyze risks, develop and implement risk reduction strategies, and design effective disaster response and recovery plans. The course covers key topics such as hazard identification, risk assessment, emergency planning, and the role of policy and community involvement in disaster management. Practical applications include case studies, risk assessment tools, and crisis simulation exercises.

Course Learning Objectives:

In this course, students will learn disaster risk management principles, including hazard identification, risk assessment, and risk reduction strategies. They will develop skills to assess risks, design risk reduction measures, and create response and recovery plans. The course also emphasizes evaluating policy impacts and community roles, and applying practical tools and techniques through case studies and simulations.

Course Contents:

1. Introduction to Risk Management- Overview of disaster risk management principles and phases.
2. Risk Assessment- Methods and tools for assessing hazards and vulnerabilities.
3. Risk Reduction Strategies- Development and implementation of risk reduction measures.
4. Response and Recovery Planning- Creating comprehensive plans for disaster response and recovery.
5. Policy and Community Involvement-Evaluating the roles of policies and community engagement.
6. Practical Applications-Use of risk assessment tools, simulations, and case studies.

Labs: In the lab, students can conduct risk assessments using simulation software and develop disaster response plans through scenario-based exercises. They can also analyze case studies to apply risk reduction strategies and test practical tools.

Recommended Texts:

1. Ojo, J. R., & Akinmoladun, J. R. (2019). Disaster risk reduction: Cases from urban Africa. Routledge. ISBN 978-0367330393.
2. Cutter, S. L., & Smith, P. S. (Eds.). (2014). Disaster risk reduction: A global review. Routledge. ISBN 978-0415507310.

Suggested Readings:

1. McCarthy, D. P. (Ed.). (2017). Disaster risk reduction: Mitigation and preparedness. Routledge. ISBN 978-1138055191.
2. Lindell, M. K., & Prater, C. S. (2015). Risk reduction for natural hazards: A guide for local government. Wiley. ISBN 978-0470900321.

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DIMS-5111	Research Approaches in Disaster Management	3(0-3)

Course Brief:

This course delves into research methodologies and approaches used in disaster management. Students will explore qualitative and quantitative research methods, data collection techniques, and analysis tools specific to disaster studies. The course covers the application of research to improve disaster preparedness, response, and recovery strategies. Emphasis is placed on designing research projects, analyzing data, and applying findings to real-world disaster management scenarios, supported by case studies and practical exercises.

Course Learning Objectives:

In this course, students will master research methodologies relevant to disaster management, including both qualitative and quantitative approaches. They will learn to design and conduct research projects, collect and analyze data, and apply findings to enhance disaster preparedness, response, and recovery. The course emphasizes practical application through case studies and real-world scenarios to improve disaster management strategies.

Course Contents:

1. Research Methodologies-Overview of qualitative and quantitative research methods.
2. Data Collection- Techniques and tools for collecting disaster-related data.
3. Data Analysis- Methods for analyzing and interpreting research findings.
4. Research Design- Developing and structuring research projects in disaster management.
5. Case Studies- Application of research findings through real-world case studies.
6. Practical Exercises: Hands-on activities to apply research methods and tools.

Labs: In the lab, students can design and conduct research projects, analyze disaster-related data using statistical software, and interpret findings through case study simulations. They can also practice data collection techniques and apply research methods to real-world scenarios.

Recommended Texts:

1. Elliott, R. J. (2015). Research methods for disaster management. Routledge. ISBN 978-1472429806.
2. Johnson, S. B. (2018). Introduction to research methods in disaster management. Routledge. ISBN 978-0367332059.

Suggested Readings:

1. Rodriguez, H., Quarantelli, E. L., & Dynes, R. R. (Eds.). (2007). Handbook of disaster research. Springer. ISBN 978-0387347761.
2. McEntire, D. A. (2019). Disaster research: A guide to research methods. Springer. ISBN 978-0826198223.

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DIMS-6112	Applied Geomorphology and Natural Hazards	3(2-1)

Course Brief:

Hazard events such as earthquakes, volcanos, drought, and storms can trigger a catastrophic reshaping of the landscape through the erosion, transport, and deposition of different kinds of materials. Geomorphology and Natural Hazards course is designed to understand Landscape Change for Disaster Mitigation that explores the natural hazards resulting from landscape change and shows how an Earth science perspective can inform hazard mitigation and disaster impact reduction.

Course Learning Objectives:

In this course, students will learn to understand the geomorphological processes, analyse the geomorphological processes and the man-environment relationship, and apply the geomorphic techniques in the field.

Course Contents:

1. **Introduction**
   - Introduction to Applied Geomorphology, Landforms and Geomorphic agents, Geomorphological Processes and Man
2. **Classification of Geomorphological Processes**
   - Endogenic Hazards, Earthquakes and seismicity, Volcanoes and volcanism, Tsunamis and sub-water processes
   - Exogenic Hazards, Rivers, Floodplains and Flooding, Glaciers and Associated Hazards, Soil Erosion by Water and Wind, Weathering, Causes, Implication, Desertification, Causes and Implication, Mass Movement Hazards
   - Biotic Hazards, Animals induced, Plants Induced, Human Induced
3. **Geomorphological Mapping**
   - Identification of Hazards, Mapping Techniques, Mapping Geomorphological Processes
4. **Applied Geomorphology and Disaster Management**
   - Floods and Flood Risk Management, Earthquake and Earthquake Risk Management Landslide and Landslide Management, Human interventions and sustainability

Lab work: Field Survey and Practical

Recommended Texts:

1. ALEXANDER, D. (2002) Principles of Emergency planning and Management. Terra Publishing, University of Minnesota, US.
2. ALLISON, R. (Edit) (2002) Applied Geomorphology: Theory and Practice. Brooks Cole, Stamford, Connecticut, USA.

Suggested Readings:

1. HYNDMAN, D. and Hyndman, D. (2010) Natural Hazards and Disasters. Brooks Cole, 3rd Revised Edition, Stamford, Connecticut, USA.
2. KHAN, A. N. (2009) Integrating Disaster Management and Climate Change Adaptation into Policy Making. Proceedings of the International Disaster Management Conference -2009, Baragali – Summer Campus, University of Peshawar, Khyber Pakhtunkhwa, Pakistan
3. KHAN, Amir Nawaz (2016) Introduction to Hazards and Disasters. Al-Azhar Environmental Planning and Management Centre, Peshawar

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DIMS-6113	Gender Mainstreaming in Disaster Management	3(2-1)

Course Brief:

This course is for Women, girls, boys, men and persons with non-binary gender identities, of various backgrounds and abilities all have different roles, responsibilities, capacities and access to resources. All these factors influence how hazards affect them, as well as how they recover and move on after disasters. It allows for women, girls, boys, men and persons with non-binary gender identities to have the best chance of preparing for, surviving, and recovering from disasters. It also strengthens the resilience of communities and is a key element to climate change adaptation and mitigation. This is why it is a cornerstone of the all-of-society approach set out in the Sendai Framework, and why goal 5 of the SDGs (on gender equality) is crucial for meeting the other goals.

Course Learning Objectives:

Upon successful completion of the course, the student will be able to: understand the concept of Gender and Gender Mainstreaming approaches; describe the impact of disaster on women and gender mainstreaming in disaster risk reduction.

Course Contents:

1. Concept of Gender
2. Gender Role Socialization
3. Gender Mainstreaming
4. Theoretical Approaches to Gender Development
5. Gender and gender relations in disasters (Status of Women in society, Perspective of gender: A missing element in disaster, Differential impact of disaster on women in different life cycle stages, Gender inequality, vulnerability and disaster).
6. Role of women in disaster management (Role in Women in Disaster Prevention, Preparedness, Mitigation and Response, Women involvement in reconstruction and development phase following an emergency and/or disaster, Psychosocial considerations in prevention, mitigation and preparedness, Community mobilization through women.

Recommended Texts:

1. Andersen, ML. and Dana, Hysock (2006) Thinking about Women: Sociological Pérspectives on Sex and Gender. Allen & Bacon, New York.
2. Ariyabandu, M. M. and Wickramasinghe, Maithree. (2005) Gender Dimension in Disaster. Raj Press, New Delhi.
3. Enarson, Elaine and Morrow Betty H. (2000). The Gendered Terrain of Disaster: Through Women's Eyes. International Hurricane centre. USA

Suggested Readings:

1. Kathy, D., Mary, E. and Lorber, J (2006) Handbook of Gender and W 's stu s U
2. Myers, Mary (1994). Women and Children first. Introducing gender strategy in disaster preparedness, Oxfordshire: Carfax publishing limited.
3. Phillips, B.D. and Morro, B.H. (2008) Womenand Disasters. Bloomington: Xlibris Corporation (United States)

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DIMS-6114	Economics of Disasters	3(2-1)

Course Brief:

This course, Economics of Disasters, provides a comprehensive overview of the economic aspects of hazards and disasters through a review of the concepts, analytical tools and policies to aid emergency managers, before, during and after emergencies. Each student reads a hazard from the Sub-committee on Disaster Reduction (SDR), and a related disaster, without a published damage assessment, then use Gross Domestic Product (GDP) data for the year prior to the disaster, year of and two subsequent years, to serve as a framework in writing their paper on the Economic Effects of the chosen disaster.

Course Learning Objectives:

Upon successful completion of the course, the student will be able to: understand the economic impacts and implications of disaster costs to the economy and analyze disasters as an opportunity to address the underlying economic causes of disasters.

Course Contents:

1. **Introduction**
   - Significance of the economic view of disasters
   - Economic Impacts of Disasters in Pakistan
   - Nature of Economic Aid after Disasters
   - Disasters as an economic opportunity
2. **Economic costs of disasters**
   - Approaches to estimation of costs after disasters for compensation
   - Budgetary provisions and mechanism of handling contingencies and disasters
3. **Transfer and sharing mechanisms of disaster costs**
   - Formal mechanism – insurance
   - Informal mechanism – collateral community based approaches
4. **Disasters as an opportunity to address economic inequality and vulnerability**
   - Designing of livelihood programmes to benefit the poor
   - Handling targeted economic humanitarian assistance to avoid reinforcing vulnerabilities.

Recommended Texts:

1. Benson, C. and Clay, E.J (2004). Understanding the Economic and Financial Impacts of Natural Disaster, Disaster Risk Management Series No.4: The World Bank. Washington D.C.
2. Goodwin, B.K. and Smith, V.H. (1995). The Economics of Crop Insurance and Disaster Aid. The AEI Press: Washington, D.C.
3. Grossi, P. and Kunreuther, H. (2005). Catastrophe Modeling: A New Approach to Managing Risk. Springer: USA.

Suggested Readings:

1. Kern, W. (2010). The Economics of Natural and Unnatural Disasters. W.E. Upjohn Institute for Employment Research: Michigan.
2. National Research Council. (1999). The Impacts of Natural Disasters: A Framework for Loss Estimation: National Academy Press: Washington DC, USA.

M.F

DIMS-6115	Disaster Project Management	3(2-1)

Course Brief:

This course identifies the causes of some well-known disasters (natural, man-made and projects) and reveals what can be learned by being able to think critically and analyse the issues. The aim of this unit is to outline traditional and contemporary theories in emergency response planning; to provide an overall scope of comprehensive emergency planning and the major elements that must be addressed in an Emergency Response Plan. Student outcomes from this unit include: Developing and implementing an Emergency Response Plan; Specific recommendations for the health and safety of emergency response personnel and provides concise information on learning objectives and a review of important concepts.

Course Learning Objectives:

This course will demonstrate understanding of fundamental physics concepts the functional requirements of Projects and design a project management workflow.

Course Contents:

1. **Introduction**
   - Project Management- Basic concepts
   - Project Management International Standards
   - Project planning and Documentation
2. **Project Management Methodologies**
   - Theory and Hypothesis
   - Project Cycle
   - Project Management Body of Knowledge (PMBOK)
3. **Project Selection Models and Types**
   - Project Scheduling & Critical Path Method
   - Decision Aiding Models
   - Criteria for Project Selection
4. **+On-Field Project Management**
   - Risk Management
   - Estimation of loss
   - Supply Chain
   - Monitoring
5. **Software related to project management**
   - Overview
   - Softwares and practice

Recommended Texts:

1. Alexander, D. (2002). Principles of Emergency planning and Management. Terra Publishing: Minnesota, US.
2. Buchanan, S. (2000). Emergency Preparedness. Preservation Issues and Planning. American Library Association: Chicago, US.
3. Goodman, L. J. and Love, R. N. (2003). Project Planning and Management: An Integrated Approach. East-West Center: CA.

Suggested Readings:

1. Van Der Weide, A. (2003). Project Planning and Management, LEMMA.
2. Wisner, Ben; Blaikie, P.; Cannon, T. and Davis, I. (2004). At Risk - Natural Hazards, People's Vulnerability and Disasters. Routledge: London, UK.

M.F

DIMS-6116	Multi-Hazards Vulnerabilities	3(2-1)

Course Brief:

This course is designed to carry out risk assessment and require knowledge and skills in using a GIS to handle the necessary the procedures, such as professionals working in governmental and non-governmental organizations, planners, engineers, architects, geographers, environmental specialists and university teachers. Some basic background in GIS is desirable, although not strictly necessary as the course follows a step-by-step approach that enables participants to rapidly acquire the basic skills in handling GIS software.

Course Learning Objectives:

This course will demonstrate understanding Physical, Economic, Social and Environmental Vulnerabilities in context of different hazards, and analyse the dynamics of Geo-spatial and Multi-hazards Vulnerabilities, and quantify the multi-components of vulnerability.

Course Contents:

1. **Introduction to Multi-Hazards Vulnerabilities**
   - Hazards: Types, Intensity, Density and Frequency
   - Vulnerability: Types, Root and Underlying Causes
   - Elements at risk
2. **Geo-Spatial Characteristics**
   - Characteristics of Hazards
   - Characteristics of Vulnerability
   - Exposure
   - Dynamics of Vulnerability
   - Interrelationship of element at risk, hazards, exposure and vulnerability
3. **Multi-component of Vulnerability**
   - Compound and Complex interrelationship
   - Quantification of vulnerability
   - Presentation of Vulnerability

Recommended Texts:

1. Disaster Risk Management and Vulnerability Reduction www.adpc.net/infores/adpc-documents/PovertyPaper.pdf
2. Handbook: International Federation of Red Cross and Red Crescent Societies. What is VCA? An introduction to vulnerability and capacity assessment.

Suggested Readings:

1. Multi Hazard Risk Assessment using GIS www.adpc.net/audmp/rllw/themes/th1-westen.pdf
2. SMITH, Keith and Petley, David N. (2009). Environmental Hazards: Assessing Risk and Reducing Disaster. 5th Edition, Routledge, London, UK.
3. UNITED States. (2002). Catastrophe insurance risks. The role of risk-linked securities and factors affecting their use. [Washington, D.C.]: U.S. General Accounting Office.

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DIMS-6117	Research Project /Internship	3(2-1)

Course Brief:
Geophysics is the branch of Earth sciences which explores and analyzes active processes of the Earth through physical measurement. The undergraduate and graduate programs are designed to provide a background of fundamentals in science, and courses to coordinate these fundamentals with the principles of geophysics. This course is designed to acquire the knowledge about the seismic waves, seismic refraction, gravity, magnetic and electrical prospecting.

Course Learning Objectives:
This course will demonstrate understanding of fundamental physics concepts such as thermodynamics, electricity, magnetism, work, and force in geophysics. This will help the students in learning the basic techniques in geophysics and the students will also work on the seismic images and interpretation of subsurface structures. This course will enable students to predict the characteristic geophysical signatures of different rock types and structures for a number of geophysical methods and choose appropriate geophysical techniques for a given geologic environment and problem

Course Contents:
1. Definition and relation of geophysics with other sciences
2. Classification and brief description of various branches of geophysics
3. Seismic reflection and refraction techniques
4. Geomagnetism
5. Geoelectricity
6. Tectonophysics
7. Gravimetry
8. Geothermy and geodesy
9. Geophysical data acquisition, processing and interpretation
10. Applications of geophysical techniques for exploration of mineral deposits
11. Oil, gas, subsurface water and engineering works
12. Introduction to earthquake seismology and geodynamics of earth

Recommended Texts:

1. Robinson, E.S., & Coruh, C. (2000). *Basic Exploration Geophysics*. Hoboken: John Wiley and Sons.
2. Burger, H. R., Sheehan, A. F., & Jones, C. H. (2000). *Introduction to applied geophysics: Exploring the shallow subsurface*. Manhattan: WW Norton.
3. Telford, W. M., Geldart, L. P., & Sheriff, R. E. (2000). *Applied geophysics*. Cambridge: Cambridge University Press

Suggested Readings:

1. Dobrin, M.B. and Savit, C. H., (2000). *Introduction to geophysical prospecting*, New York: McGraw-Hill.

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DIMS-6118	Natural Hazards of Pakistan	3(2-1)

Course Brief:

Natural hazards are dynamic and unpredictable events that are a continuous threat to global socio-economic development. Humans' reactions to these catastrophes are influenced by their proximity to the hazards and their ability to anticipate, resist, cope with, and recover from their consequences. Due to climatic changes, the risk of multiple natural hazards is expected to increase in several regions of Pakistan.

Course Learning Objectives:

This course will demonstrate understanding of physiography of Pakistan and understand the nature, causes, consequences, history and remedies of the natural hazards occurring in Pakistan.

Course Contents:

1. **Physiography of Pakistan** (Landforms, Climate, Ecological region of Pakistan, Seismic zones of Pakistan)
2. **Natural Hazards** (Floods, Earthquakes, Tsunami, Landslides, Desertification, Drought, Cyclone, Snow Avalanches, Glacial Hazards, Salinization, Heat and Cold Waves, Sea Water Intrusion, Deforestation, Environmental pollution, Smog, Pest infestation, Epidemics).
3. **Exposure, Vulnerability and Risk related to Natural Hazard** (Physical, Economic, Social, and Environmental).
4. **Turning Hazards into Disasters** (Factors, Reasons, Dynamics, Triggers).
5. **Disaster trends and Management framework** (Historical perspective, Management Framework (National, Provincial and District).

Recommended Texts:

1. Nawaz, Amir (2016). Introduction to Hazards and Disasters, Al-Azhar Environmental Planning and Management Centre, Peshawar, Pakistan.
2. Ahmad, N. and Qureshi, I. A. (1995). Disaster Management in Punjab: A study of flood management in district Jhelum. Pakistan Academy for Rural Development, Peshawar.
3. Birkmann, J. (2006). Measuring Vulnerability to Natural Hazards: Towards disaster resilient societies. Tokyo, United Nations University Press.

Suggested Readings:

1. Foster, H. D. (1980). Disaster Planning: The preservation of life and property. Berlin, Springer Verlog.
2. Hewitt K. (1997). Regions of Risk: A Geographical introduction to disaster, Harlow, Longman.
3. Khan, A.N. (1996). Planning for Reduction of Flood Hazard. Proceeding of Pakistan Geographical Association, Bahawalpur Conference.
4. Mcentire, D. (2007). Disaster Response and Recovery: New Jersey, Oxford, U

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DIMS-6119	Disasters Risk and Urbanization	3(2-1)

Course Brief:

This course is planned for the Impacts of rapid urbanization, urban bias in development, principles of urban planning. Urban services and infrastructure, interagency coordination, hazards and disasters in urban areas, Policy, planning and strategies for mitigating and reducing risks of urban disasters and climate change adaptation in urban areas.

Course Learning Objectives:

This course will demonstrate understanding to acquire knowledge about the relationship between disaster risk and urbanization and analyse the urban hazards and risk reduction measures.

Course Contents:

1. **Introduction** (Concept of Urbanization, Causes and impacts of urbanization)
2. **Urban Morphology** (Urban forms and Pattern, City structure, Population and City Land use).
3. **Hazards in Urban Environment** (Urban Floods, Environmental Pollution, Urban Fire, Chemical Hazards, Earthquake and Resilience).
4. **Vulnerabilities in urban areas** (Population distribution, Urban Slums, Housing structure, Building codes and byelaws, Accessibility, Emergency services, Hydrology and drainage system).
5. **Urban Risk Reduction** (Urban Risk and Urban Authorities, Urban Risk Reduction Strategies, Urban Disaster Management Plan).

Lab work:

- Field Study of any city
- Visit to various urban authorities
- Visit to Fire Brigade, Rescue, EPA

Recommended Texts:

1. Ferguson, Ronald F. and Dickens, William T. (1999). Urban Problems and Community Development. Brookings Institution Press.
2. Rahman, A., Khan, A. N., Shaw R. (2016). Disaster Risk Reduction Approaches in Pakistan. SPRINGER Verlag, Tokyo, JAPAN.
3. Shaw, R., Rahman, A., Surjan, A., & Parvin, G. A. (2016). Urban Disasters and Resilience in Asia. Elsevier Inc. New York.

Suggested Readings:

1. Khan, A. N. (2009). Integrating Disaster Management and Climate Change Adaptation into Policy Making. Proceedings of the International Disaster Management Conference -2009, Baragali – Summer Campus, University of Peshawar, Khyber Pakhtunkhwa, Pakistan
2. Pelling, Mark and Wisner, Ben (2008). Disaster Risk Reduction: Cases from Urban Africa. Earthscan Publications Ltd., London, UK.
3. Pugh, Cedric (1996). Sustainability the Environment and Urbanisation. Earthscan, London, Uk

M.F

DIMS-6120	GIS and Remote Sensing in Disaster Management	3(2-1)

Course Brief:

This course is the application of GIS and remote sensing in mapping the extent and severity of natural hazards, and for assessing vulnerability to natural hazards for effective disaster management. This includes the mapping and assessment of zones vulnerable to flooding, fires, wind, volcanic, earthquake, or other naturally occurring disasters.

Course Learning Objectives:

This course will demonstrate to understand the fundamental theory of Geographic Information Systems (GIS) & Remote Sensing, Apply the GIS tools to conduct hazard analysis and risk assessment AND Prepare hazard & risk maps that are fit-for-purpose and effectively convey the information they are intended to.

Course Contents:

1. Geographical Information System (GIS) Fundamental theory of Geographic Information Science, Concepts of spatial database and types (its acquisition and development, Concept of four M's (Mapping, Modeling, Management & Monitoring) in GIS, Spatial Data handling for disaster management.

2. Remote Sensing (RS) History Scope and Concept of Remote Sensing, Elements of Remote Sensing, Concepts of Image resolution, swath width, cycle and limitations, Remote Sensing data for hazard forecasting and monitoring.

3. Application of GIS and RS in Disaster Management (Hazard Mapping & Risk Assessment, Role of GIS and RS in Mitigation and Preparedness, Role of GIS and RS in Disaster Response and Recovery, Role of GIS and RS in Disaster Risk Assessment, Preparation of different thematic maps; exercises on creating maps for different disasters).

Practical and Lab: Work (Geo-referencing, Creation of feature class, Data input and processing, data Mosaicing, Thematic Maps and their cartographic representation, Data handling and Out put, Use of remotely sensed data, Image processing and extraction of features and information, Uses and application of raster and vector data in Disaster Management, Hazard, vulnerability and risk mapping).

Recommended Texts:

1. Chang, K. T. (2010). "Introduction to Geographical Information Systems" Higher Education, McGraw-Hill.
2. Clarke, K. (2010). "Getting started with Geographic Information System", 5th Edition, Prentice Hall, New York. ISBN –10: 0131494988.
3. Huisman, O. and de By, R. A.(2009). "Principles of Geographic Information Systems: An Introductory Textbook", ITC Educational Textbook Series; 1, ISBN 978-90-6164-269-5.

Suggested Readings:

1. Gopi, S., Sathikumar, R., & Madhu, N. (2007). Advance Surveying Total Station, GIS and Remote Sensing. New Delhi, India: Dorling Kindersley.
2. Campbell, James B. (2011). Introduction to Remote Sensing, 5th Ed. The Guilford Press.
3. Foody, G.M. & Curran, P.J. (1994). Environmental Remote Sensing from Regional to Global scales. John, Wiley & Sons. Inc. 250 p.
4. Gibson, P. J (2000). Introductory Remote Sensing: Principles and Concepts Rutledge.

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DIMS-6121	Climate Change and Natural Hazards	3(2-1)

Course Brief:

This course will delve into an in-depth analysis of the generation and occurrence of natural hazards, their impacts, and effective risk management strategies. This course also includes the consideration of how climate change is modifying natural events. Students will explore and analyze natural hazards and climate change that impact our environment and future global risk reduction and sustainability initiatives with a focus on creating solutions that mitigate the impact of hazards on society.

Course Learning Objectives:

This course will demonstrate to understand the process of climate change and its impacts and demonstrate linkage between natural hazards and climate change.

Course Contents:

1. **Introduction** (Introduction to Science of Climate Change, Weather and Climate, Global Climatic Regions).
2. **Oceans, Hydrological cycle and weather** (Surface Current, Carbon sink, Hydrological cycle, Hydro-Meteorological System, Climate change and its impact, El-Nino and La-nina Effects and climate change).
3. **Causes of Climate Change and indicators** (Impacts of Climate Change, Global Warming, Extreme Weather Events, Linkage between Climate Change and Natural Hazards, Hydro-meteorological Hazards and Disasters, Global Distribution of Hydro-meteorological Disasters, Climate Change Adaptation and Disaster Risk Reduction.

Practical and Lab: Uses and application of climate models, Forecasting and Early warning system, Multi-hazard forecasting and early warning mechanism in Pakistan, RADAR and Satellite based weather forecast, Mainstreaming climate change adaptation and disaster mitigation, Tools for Climate Change Adaptation.

Recommended Texts:

1. REID, Hannah. (2014). Climate change and human development, Zed Books, London, UK
2. 2. DOW, Kristin, Downing, Thomas, E. (2011). The atlas of climate change: mapping the world's greatest challenge, University of California Press, Berkley, UK.
3. BURROUGHS, William James (2007). Climate Change: A Multidisciplinary Approach. 2nd Edition, Cambridge University Press, London, UK.

Suggested Readings:

1. GAVIN, Schmidt and Wolfe, Joshua; Jeffrey, D. Sachs (2009). Climate Change: Picturing the Science, Earthscan, London, UK.
2. KININMONTH, William (2004). Climate Change: A Natural Hazard. Multi- Science,
3. SMITH, Keith; Petley, David N. (2009). Environmental Hazards: Assessing Risk and Reducing Disaster. 5th Edition, Routledge, London, UK.

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DIMS-6122	Techniques of Hazard Mapping	3(2-1)

Course Brief:

This course presents the concept of multiple hazard mapping, describes the benefits of using multiple hazard maps relative to individual hazard maps, and explains the preparation and use of such maps. When an area is exposed to more than one hazard, a multiple hazard map (MHM) helps the planning team to analyze all of them for vulnerability and risk. By facilitating the interpretation of hazard information, it increases the likelihood that the information will be used in the decision-making process. In either the planning of new development projects or the incorporation of hazard reduction techniques into existing developments, the MHM can play a role of great value.

Course Learning Objectives:

This course will demonstrate to understand the basic elements of a map, illustrate the hazard variables and application methods and techniques of hazard mapping.

Course Contents:

1. **Introduction** Maps (Definition, Importance and Use), Types of Maps (Scale, Purpose and Content), Basic Elements of a Map.
2. **Types and variables of Hazards** Standard definition of a hazard, derivation of variables, listing of map-able variables, interlinking of variables and map components.
3. **Cartography and Map drawing in Lab Sketch Map,** Drawing Tools, Surveying Tools, Computer Aided Cartography, GIS &RS, Multi-Tool Mapping

Lab work: Data availability, spatio-temporal dynamics, multi-variables, hazard mapping.

Recommended Texts:

1. Crampton, Jeremy W. (2010). Mapping: A Critical Introduction to Cartography and GIS. Wiley-Blackwell; 1 Edition, Hoboken, New Jersey, USA.
2. Monmonier, Mark (1998). Cartographies of Danger: Mapping Hazards in America. University of Chicago Press, 1 Edition, USA.
3. Peckham, Robert Joseph and Jordan, Gyozo (2007). Digital Terrain Modelling: Development and Applications in a Policy Support Environment. Series: Lecture Notes in Geoinformation and Cartography, Springer, Berlin, Germany.

Suggested Readings:

1. Peterson, Gretchen N. (2009). GIS Cartography: A Guide to Effective Map Design. Taylor and Francis, CRC Press; 1 Edition, USA.
2. Robinson, H.; Morrison, Joel L.; Muehrcke, Phillip C. and Kimerling, A. J. (1995). Elements of Cartography. J. Wiley Co., New York, USA.

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DIMS-6123	Practical in Disaster Management	3(3-0)

Course Brief:

This course presents the concept of Basic principles of disasters management, Disaster Management cycle, Disaster management policy, National and State Bodies for Disaster Management, Early Warming Systems, Building design and construction in highly seismic zones, retrofitting of buildings.

Course Learning Objectives:

This course will demonstrate to identify the needs of practical skills of emergency response and Apply the practical skills during emergency response.

Course Contents:

1. Map reading and drawing General Maps, Topographic Maps, Weather Maps, Distance, shape and area analysis on a map, Contour and Slope analysis, Drainage Pattern analysis, Hazard Mapping.
2. Search and Rescue (Types, Equipment, Trainings).
3. Fire Prevention and Fighting (Types of Fire, Fire safety provision, Equipment and techniques).
4. Medical First Aid Vital Sign, Basic Life Support, Wounds and its Types: Pre-Hospital Management, Basic Guidelines for Management of Fractures, Burn Injuries Safe Transportation of Patient, Foreign Body Airway Obstruction (FBAO), First aid for victims of extreme weather events.

Recommended Texts:

1. Alexander, David (2002). Principles of Emergency planning and Management. Terra Publishing, University of Minnesota, US.
2. Buchanan, Sally (2000). Emergency Preparedness. Preservation Issues and Planning. Chicago, American Library Association
3. Abrams, J. and Hall, P. (2006). Else/Where: Mapping — New Cartographies of Networks and Territories. University of Minnesota Design Institute, Minnesota.

Suggested Readings:

1. Brewe, A. C. (2005). Designing Better Maps: A Guide for GIS Users. ESRI Press. P. 220.
2. Buchanan, Sally (2000). Emergency Preparedness. Preservation Issues and Planning. Chicago, American Library Association
3. Government of Pakistan (GoP) (2017). Building code of Pakistan: Fire safety provision 2016. National Disaster Management Authority, Islamabad.

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Elective Courses

DIMS-6130	Climate Change Adaptation and Disasters	3(3-0)

Course Brief:

This course Climate Change Adaptation and Disaster is designed to meet challenges presented by climate change and its profound influence on the frequency, intensity, and character of natural calamities. Students will be able to explore and understand the science behind climate change, understand its effects on various natural and human systems. The will learn about the strategies and policies designed to adapt to these changes. The course emphasizes the integration of climate change adaptation into disaster risk reduction frameworks, highlighting the need for resilient communities and sustainable development practices.

Course Learning Objectives :

On complementation of this course, students will be able to critically analyze the linkages between climate change and disaster risk, identifying vulnerable regions and populations. They will develop skills to design and implement adaptation strategies that reduce climate-related risks, incorporating both scientific knowledge and local insights. Additionally, students will learn to evaluate and recommend policy measures that support climate-resilient development, ultimately contributing to more effective disaster management in the context of a changing climate.

Course Contents:

1. Introduction
2. Climate change and climate variability
3. Major impacts of climate change on agriculture, water resources, forestry, biodiversity, human health and hydro-meteorological phenomena
4. Climate Change Adaptation
5. Overview of Climate Change Adaptation
6. International protocols
7. Climate Change and extreme hydro-meteorological events
8. Criteria for prioritization of Climate Change Adaptation
9. Climate Change Vulnerability
10. Climate change and vulnerabilities
11. Local coping strategies, indigenous knowledge in climate change adaptation
12. Climate Change Adaptation in Pakistan
13. Climate change adaptation in Pakistan
14. Climate Change and agriculture, water, forestry, biodiversity, health sectors

Recommended Texts:

1. Kelman, I., Mercer, J., & Gaillard, J. C. (Eds.). (2017). The Routledge handbook of disaster risk reduction including climate change adaptation. London: Routledge.
2. Eslamian, S., & Eslamian, F. (Eds.). (2023). Disaster Risk Reduction for Resilience: Climate Change and Disaster Risk Adaptation. Springer Nature.
3. Boulter, S., Palutikof, J., Karoly, D. J., & Guitart, D. (Eds.) (2013). Natural disasters and adaptation to climate change. Cambridge University Press.

Suggested Readings:

1. Inderberg, T. H., Eriksen, S., O'Brien, K., & Sygna, L. (2015). Climate change adaptation and development. London and New York: Routledge.
2. Siddiqui, A. R., & Sahay, A. (Eds.) (2022). Climate Change, Disaster and Adaptations: Contextualising Human Responses to Ecological Change. Springer Nature.

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DIMS-6131	Environment and Hazards Management	3(3-0)

Course Brief:

The Environment and Natural Hazards course provides a comprehensive overview of the interconnections between environmental systems and the occurrence of natural hazards. It begins with an introduction to environmental components and their roles in shaping the Earth's natural processes. Students will explore the Earth's spheres, including the lithosphere, hydrosphere, cryosphere, biosphere, and atmosphere, to understand their influence on the planet's heat budget and the greenhouse effect, leading to global warming. The course also delves into the principles of environmental sustainability, focusing on the sustainable use of resources for disaster risk reduction (DRR), and examines the interplay between ecosystems, economic activities, and environmental resources. Additionally, the course addresses the critical issue of environmental degradation, highlighting the impacts of pollution and the resulting environmental hazards on human health and safety.

Course Learning Objectives :

Upon completing this course, students will gain a understanding of the fundamental environmental components and their roles in the occurrence and mitigation of natural hazards. They will be able to explain the Earth's spheres and their contributions to global processes such as the greenhouse effect and climate change. Students will also learn to evaluate the principles of environmental sustainability and how they can be applied to reduce disaster risks through the sustainable use of natural resources. Furthermore, they will develop the ability to assess the impact of environmental degradation, particularly pollution, on disaster vulnerability and overall environmental health, enabling them to propose strategies for mitigating environmental hazards and promoting resilience.

Course Contents:

1. Introduction
2. Introduction to Environment and Natural Hazards
3. Environment and it's components
4. Earth spheres and Greenhouse gases
5. Spheres of the Earth (Litho, Hydro, Cryo, Bio, and Atmosphere)
6. Earth Heat Budget System
7. Green House Effects
8. Global Warming
9. Environment and sustainability
10. Sustainable Use of Resources for DRR
11. Eco-Systems, Food Chain and Energy Chain
12. Environment and Resources
13. Economic Activities & Environment
14. Environmental Degradation
15. Pollutions and Disasters
16. Environmental Hazards

Recommended Texts:

1. Smith, K. et al. (2024). Environmental Hazards Assessing Risk and Reducing Disaster. 7th edn. Routledge.
2. Dalezios, N. R. (Ed.) (2017). Environmental hazards methodologies for risk assessment and management. IWA publishing.

Suggested Readings:

1. Paul, B. K. (2011). Environmental hazards and disasters: Contexts, perspectives and management. Wiley.
2. Dalezios, N. R. (Ed.) (2017). Environmental hazards methodologies for risk assessment and management. IWA publishing.

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DIMS-6132	Earthquake Hazard Risk Reduction	3(3-0)

Course Brief:

The Seismic Hazards and Risk Management course offers an in-depth exploration of earthquake science, seismic hazards, and risk mitigation strategies. The course begins with fundamental concepts of earthquakes, including the nature of faults, the mechanics of seismic waves, and the use of seismometry to detect and measure seismic activity. It progresses to detailed analyses of seismic hazards, covering both primary and secondary effects such as ground shaking, landslides, liquefaction, and tsunamis. Students will learn about strong ground motion parameters, ground motion prediction equations (GMPEs), and both deterministic and probabilistic seismic hazard analysis techniques. The course also emphasizes seismic risk, with a focus on exposure characterization, building typologies, vulnerability assessments, and risk evaluation.

Course Learning Objectives :

The students will be equipped with a comprehensive understanding of seismic hazards and the tools used to assess and mitigate associated risks. They will be able to describe the basic principles of seismology and identify the various primary and secondary hazards resulting from earthquakes. Students will also develop skills in conducting seismic hazard analyses, including ground motion prediction and site-effect evaluations, and will be proficient in assessing seismic risk using exposure and vulnerability assessments. Through case studies, they will gain practical insights into urban building typologies and risk assessment methodologies. Additionally, students will learn to apply advance methods for earthquake research, understand early warning systems, and evaluate public awareness strategies and insurance options to enhance community resilience against seismic events.

Course Contents:

1. Introduction
2. Basics on Earthquakes (Faults, Size and Location of Earthquakes)
3. Seismology, Seismic Waves and Seismometry
4. Seismic Hazards
5. Primary and Secondary Hazards (Ground Shaking, Land-Sliding, Liquefaction, Tsunami, Fires, etc.)
6. Introduction to Hazard Analysis (Deterministic & Probabilistic Seismic Hazard Analysis)
7. Introduction to local site-effects and seismic soil-response analysis
8. Evaluation of Landsliding and Liquefaction Hazards
9. Seismic Micro-Zonation
10. Seismic Risk
11. Seismic Vulnerability/Fragility Assessment
12. Seismic Risk Assessment Case Studies: Damage Evaluation and Loss Estimation
13. Seismic Risk Mitigation
14. Earthquake Prediction and Early Warning Systems
15. Public Awareness and Preparedness
16. Earthquake Insurance

Recommended Texts:

1. Xu, J., Lu, Y., & Penning-Rowsell, E. C. (Eds.) (2022). Earthquake Disasters: Prevention and Reconstruction. Routledge.
2. Balassanian, S., Cisternas, A., & Melkumyan, M. (Eds.). (2013). Earthquake hazard and seismic risk reduction (Vol. 12). Springer Science & Business Media.
3. Balassanian, S., Cisternas, A., & Melkumyan, M. (Eds.) (2013). Earthquake hazard and seismic risk reduction (Vol. 12). Springer Science & Business Media.

Suggested Readings:

1. Sorkhabi, R. (Ed.) (2014). Earthquake hazard, risk and disasters. Academic Press.
2. Mulargia, F., & Geller, R. J. (Eds.) (2012). Earthquake science and seismic risk reduction (Vol. 32). Springer Science & Business Media.

M.F

DIMS-6133	Natural Resources and Disaster	3(3-0)

Course Brief:

The Natural Resources and Disasters course provides an extensive overview of the relationship between natural resources and disaster management. The course begins with the classification of natural resources and their utilization patterns, setting the foundation for understanding how these resources interact with disaster events. It introduces students to the key concepts of natural resources management within the context of disaster risk reduction, highlighting the impacts disasters can have on natural resources. The course also covers the strategies for the preservation, conservation, and restoration of natural resources, as well as the policies and management approaches necessary for sustainable use. Further, it examines the interaction between natural resources and the human environment, emphasizing the role of natural resources in development, ecological balance, and their influence on natural hazards.

Course Learning Objectives :

The students will have a comprehensive understanding of natural resources, including their classification, utilization, and the impact of disasters on them. They will be able to assess how natural resources contribute to and are affected by disasters, and evaluate the effectiveness of various conservation and restoration strategies. Students will also develop skills in analyzing natural resources policies and management practices, understanding the intricate relationship between natural resources, human activities, and the environment. Additionally, they will gain insight into the role of natural resources in maintaining ecological balance and mitigating natural hazards, equipping them to contribute to sustainable disaster management and development practices..

Course Contents:

1. Natural Resources and its Classification
2. Utilization patterns of natural resources
3. Introduction to Natural Resources and Disaster management
4. Impacts of Disasters on Natural Resources
5. Preservation, Conservation and Restoration of Natural Resources
6. Natural Resources Policies and its Management
7. Natural Resources and Human Environment Interaction
8. Natural Resources and Development
9. Ecological Balance Systems
10. Natural Resources and Natural Hazards

Recommended Texts:

1. Woodmansee, R. G., Moore, J. C., Ojima, D. S., & Richards, L. (Eds.) (2021). Natural Resource Management Reimagined: Using the Systems Ecology Paradigm. Cambridge University Press.
2. Blanco, E., & Razzaque, J. (2011). Globalisation and natural resources law: challenges, key issues and perspectives. Edward Elgar Publishing.
3. Brebbia, C. A., & Zubir, S. S. (Eds.) (2012). Management of natural resources, sustainable development and ecological hazards III (No. 3). WIT Press.

Suggested Readings:

1. Young, Oran R. (2022). Natural resources and the state: The political economy of resource management. Vol. 6. Univ of California Press.
2. Perman, R. (2003). Natural resource and environmental economics. Pearson Education.

M.F

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DIMS-6134	Flood Hazard Risk Reduction	3(3-0)

Course Brief:

This Flood Hazard Risk Reduction course is designed to equip students with the complexities of flood hazards, exploring their characteristics, causes, and impacts. Students will begin by understanding the general nature of floods, including the meteorological, hydrological, and anthropogenic factors that contribute to their occurrence. The course covers various types of floods, such as riverine, flash, coastal floods, and Glacial Lake Outburst Floods (GLOF), along with the conditions that can intensify these events. It examines the impact of climate change on flood frequency and severity, and discusses the major consequences of flooding on communities and environments. The course also introduces the basic principles of flood hazard, risk, and vulnerability assessment, leading to an integrated approach to flood risk management.

Course Learning Objectives :

Upon completing this course, students will have a thorough understanding of the various aspects of flood hazards, including their causes, types, and impacts. They will be able to analyze the conditions that contribute to flood events and assess the influence of climate change on flood risks. Students will gain proficiency in conducting flood hazard, risk, and vulnerability assessments, applying these skills to develop integrated flood risk management strategies. Additionally, students will be equipped to understand and design early warning systems for floods, enhancing community preparedness and resilience against flood hazards.

Course Contents:

1. Introduction to Flood Hazard
2. General Characteristics of Flood
3. Causes of Floods
4. Meteorological
5. Hydrological
6. Anthropogenic
7. Flood Intensifying Conditions
8. Types of Floods (Riverine flood , Flash flood, Coastal flood, GLOF)
9. Climate Change Impacts on floods
10. Major Flood Impacts
11. Basic Principles in Flood Hazard Assessment
12. Basic Principles in Flood Risk and Vulnerability Assessment
13. Integrated Flood Risk Management
14. Flood Mitigation Measures
15. Structural (Engineering Protection)
16. Non-structural (Planning and Policies)
17. Early Warning System for Floods

Recommended Texts:

1. Ahadzie, D. K., Proverbs, D., Soetanto, R., & Oladokun, V. (2023). Handbook of flood risk management and community action: An international perspective. In Handbook of Flood Risk Management and Community Action (pp. 1-6). Routledge.
2. Lamond, J., Booth, C., Hammond, F., & Proverbs, D. (Eds.) (2011). Flood hazards: Impacts and responses for the built environment. CRC Press.

Suggested Readings:

1. Schumann, A. H. (Ed.) (2011). Flood risk assessment and management: How to specify hydrological loads, their consequences and uncertainties. Springer Science & Business Media.
2. Glago, F. J. (2021). Flood disaster hazards; causes, impacts and management: a state-of-the-art review. Natural hazards-impacts, adjustments and resilience, 29-37.

M.F

DIMS-6135	Hydrogeology and Water-Related Disasters	3(3-0)

Course Brief:
The Hydrogeology and Water-Related Disasters course focuses on the study of groundwater systems and the role of hydrogeological processes in water-related disasters such as floods, droughts, and groundwater contamination. This course provides students with an in-depth understanding of the hydrological cycle, groundwater flow, aquifer properties, and the interaction between surface water and groundwater. It also covers the impacts of human activities on groundwater resources and the potential hazards associated with mismanagement. Emphasis is placed on understanding water-related disasters, their causes, and mitigation strategies, with a focus on sustainable water resource management in the face of increasing environmental pressures.

Course Learning Objectives :
The students will have a comprehensive understanding of the fundamental principles of hydrogeology, including groundwater flow, aquifer properties, and the interaction between surface water and groundwater. They will be equipped to analyze the causes and effects of water-related disasters such as floods, droughts, and groundwater contamination, and will be able to evaluate the impact of human activities on groundwater systems, identifying potential risks associated with groundwater depletion and pollution. Students will also develop the ability to apply hydrogeological principles to the assessment and management of water resources, focusing on preventing or mitigating water-related disasters.

Course Contents:
1. Introduction to Hydrogeology
2. The Hydrological Cycle
3. Groundwater Flow and Aquifer Properties
4. Surface Water and Groundwater Interactions
5. Groundwater Systems and Aquifer Dynamics
6. Types of Aquifers
7. Groundwater Recharge and Discharge
8. Groundwater Quality and Contamination
9. Water-Related Disasters
10. Overview of Water-Related Disasters
11. Causes of Floods and Droughts
12. Groundwater Contamination and Pollution Sources
13. Human Impacts on Groundwater
14. Overexploitation of Groundwater Resources
15. Land Use and Its Effects on Groundwater
16. Climate Change and Its Impact on Groundwater
17. Disaster Mitigation and Water Resource Management
18. Techniques for Groundwater Monitoring and Management
19. Flood and Drought Mitigation Strategies
20. Sustainable Water Resource Management Practices
21. Case Studies and Applications
22. Analysis of Major Water-Related Disasters
23. Successful Groundwater Management Programs
24. Policy and Planning for Water Security

Recommended Texts:

1. Schwartz, F. W., & Zhang, H. (2024). Fundamentals of groundwater. John Wiley & Sons.
2. Li , P., Wu, J., Zhou, W. & LaMoreaux, J W. (2023). Hazard hydrogeology. Springer Science & Business Media.

Suggested Readings:

1. Tang, Y., Zhou, J., Yang, P., Yan, J., & Zhou, N. (2017). Groundwater engineering. Springer Singapore.
2. Fernandes, F., Malheiro, A., & Chaminé, H. I. (2020). Advances in natural hazards and hydrological risks: meeting the challenge. Springer International Publishing.

M.F

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DIMS-6136	Coastal Zone Management and Disasters	3(3-0)

Course Brief:

This course focuses on the unique challenges and strategies involved in managing coastal zones, with an emphasis on disaster risk reduction and sustainable development. Coastal areas are particularly vulnerable to natural hazards such as storms, tsunamis, coastal erosion, and sea-level rise, which are exacerbated by climate change and human activities. This course explores the dynamic interactions between natural processes and human activities in coastal zones, providing students with the knowledge to assess risks, develop mitigation strategies, and implement effective management practices. Through case studies and practical applications, students will learn how to protect and sustainably manage coastal environments while minimizing disaster risks.

Course Contents:

1. Introduction to Coastal Zones and Their Management
2. Overview of Coastal Zones and Their Importance
3. Key Concepts in Coastal Zone Management
4. The Role of Coastal Zones in Disaster Risk Reduction
5. Coastal Processes and Hazards
6. Physical Processes: Waves, Tides, and Currents
7. Coastal Erosion and Sediment Transport
8. Natural Hazards in Coastal Zones: Storms, Tsunamis, and Sea-Level Rise
9. Impacts of Climate Change on Coastal Zones
10. Sea-Level Rise and Coastal Flooding
11. Increased Storm Intensity and Frequency
12. Vulnerability of Coastal Ecosystems and Communities
13. Coastal Zone Management Strategies
14. Integrated Coastal Zone Management (ICZM)
15. Engineering Approaches: Sea Walls, Breakwaters, and Revetments
16. Ecosystem-Based Approaches: Mangrove Restoration, Coral Reef Protection
17. Risk Assessment and Mitigation in Coastal Zones
18. Hazard and Vulnerability Assessment Techniques
19. Developing and Implementing Coastal Risk Mitigation Plans
20. Case Studies in Coastal Risk Management
21. Sustainable Development in Coastal Zones
22. Balancing Environmental, Economic, and Social Needs
23. Coastal Land Use Planning and Zoning
24. Community Involvement and Stakeholder Engagement in Coastal Management

Recommended Texts:

1. Singh, A., Fernando, R. L. S., & Haran, N. P. (2020). Development in Coastal Zones and Disaster Management. Springer Singapore.
2. Ramkumar, M., James, A., Menier, D., & Kumaraswamy, K. (Eds.) (2018). Coastal Zone Management: Global Perspectives, Regional Processes, Local Issues. Elsevier.

Suggested Readings:

1. Beatley, T., Brower, D. J., & Schwab, A. K. (2002). An introduction to coastal zone management.
2. Finkl, C. W. (Ed.). (2013). Coastal hazards (Vol. 2). Dordrecht, The Netherlands: Springer.

M.F

DIMS-6137	Geo-Engineering of Disasters	3(3-0)

Course Brief:

This course offers a comprehensive study of the intersection between engineering geology, and disaster management. It focuses on the assessment, mitigation, and management of geological hazards, providing students with the essential knowledge to analyze and address the risks associated with these natural events. Through this course, students will explore the principles of engineering geology, including soil and rock mechanics, slope stability, and the geological factors that influence the design and resilience of infrastructure. By integrating these disciplines, students will develop a holistic approach to disaster preparedness and risk reduction, emphasizing practical engineering solutions and informed decision-making.

Course Learning Objectives :

This course will enable students to understand the key principles of engineering geology and apply them in assessing and mitigating geological hazards. Students will evaluate and manage risks associated with geological hazards using advanced engineering geological techniques, applying these concepts to design and implement resilient infrastructure. Through the analysis of real-world case studies, students will identify effective strategies for mitigating geological risks. Additionally, they will develop comprehensive disaster preparedness and mitigation plans that integrate engineering geology principles, ultimately enhancing community resilience.

Course Contents:

1. Introduction to Geo-Engineering and Disaster Management
2. Overview of Geo-Engineering in Disaster Management
3. Fundamentals of Engineering Geology and Seismology
4. The Role of Geo-Engineering in Risk Reduction
5. Soil and Rock Mechanics in Hazard Assessment
6. Soil Properties and Classification Systems
7. Rock Mechanics: Strength and Deformation
8. Geotechnical Investigations for Disaster Management
9. Geological Hazards and Engineering Solutions
10. Understanding Geological Hazards: Landslides, Rockfalls, and Subsidence
11. Slope Stability Analysis and Mitigation Techniques
12. Engineering Approaches to Geological Hazard Management
13. Disaster Preparedness and Community Resilience
14. Integrating Geo-Engineering in Disaster Preparedness Planning

Recommended Texts:

1. Bell, F. G. (2013). Engineering geology and geotechnics. Elsevier.
2. Chu, J., Phoon, K. K., & Yong, K. Y. (Eds.)(2005). Geotechnical Engineering For Disaster Mitigation And Rehabilitation-Proceedings Of The International Conference (With Cd-rom). World Scientific.

Suggested Readings:

1. Price, D. G. (2009). Engineering geology: principles and practice. Springer Science & Business Media.
2. Attewell, P. B., & Farmer, I. W. (2012). Principles of engineering geology. Springer Science & Business Media.

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DIMS-6138	Artificial Intelligence in Disaster Management	3(3-0)

Course Brief:

This course explores the transformative role of Artificial Intelligence (AI) in disaster management, focusing on how AI technologies can enhance disaster preparedness, response, and recovery efforts. With the increasing complexity and frequency of natural and man-made disasters, AI offers innovative solutions for early warning systems, risk assessment, and resource allocation. Students will learn about AI applications in real-time data analysis, predictive modeling, and decision support systems, gaining insights into how these technologies can be integrated into disaster management frameworks. The course combines theoretical knowledge with practical case studies to demonstrate the impact of AI on improving resilience and reducing the risks associated with disasters.

Course Learning Objectives :

This course will enable students to understand the fundamental concepts of AI and its crucial applications in disaster management. They will analyze how AI technologies can enhance early warning systems, risk assessment, and decision-making processes during disasters. Students will evaluate the effectiveness of AI-driven tools and models in predicting disasters and optimizing response strategies, while also developing practical skills in using AI for real-time data analysis and resource management during crisis scenarios. The course will also explore the ethical considerations and challenges associated with AI in disaster contexts. Through case studies, students will apply AI-based solutions, demonstrating how these technologies can significantly improve disaster preparedness and recovery efforts.

Course Contents:

1. Introduction to AI in Disaster Management
2. Overview of AI Technologies and Their Relevance to Disaster Management
3. The Role of AI in Enhancing Disaster Preparedness, Response, and Recovery
4. AI in Early Warning Systems
5. AI-Driven Data Collection and Monitoring Techniques
6. Predictive Modeling for Disaster Forecasting
7. Case Studies: AI in Flood Prediction, Earthquake Warning Systems, and Cyclone Tracking
8. Risk Assessment and Decision Support Systems
9. AI Applications in Resource Allocation and Logistics Planning
10. Real-Time Data Analysis and Crisis Management
11. Machine Learning and Big Data Analytics in Disaster Scenarios
12. AI in Real-Time Monitoring and Crisis Communication
13. Implementing AI in Emergency Response Operations
14. AI and Disaster Recovery
15. Post-Disaster Damage Assessment Using AI
16. AI in Recovery Planning and Infrastructure Rehabilitation
17. Ethical Implications of AI in Disaster Management

Recommended Texts:

1. Satishkumar, D., & Sivaraja, M. (Eds.) (2024). Utilizing AI and Machine Learning for Natural Disaster Management. IGI Global.
2. Gobinath, A., Reshmika, K. S., & Sivakarthi, G. (2024). Predicting Natural Disasters With AI and Machine Learning. In Utilizing AI and Machine Learning for Natural Disaster Management . IGI Global

Suggested Readings:

1. Kumar, T. V., & Sud, K. (Eds.) (2020). AI and robotics in disaster studies. Singapore: Palgrave Macmillan.
2. Russell, S. J., & Norvig, P. (2016). Artificial intelligence: a modern approach. Pearson.

M.F

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Interdisciplinary/ Allied Courses

GEOL - 5101	Introduction to Geology	3(3-0)

Course Brief:

This course is designed to acquire the knowledge about the basic concepts of geology. This will help the students to get knowledge about various types of rocks, minerals and the processes of their formation. Geology is the core discipline of the earth sciences and encompasses many different phenomena, including plate tectonics and mountain building, volcanoes and earthquakes, and the long-term evolution of Earth's atmosphere, surface and life.

Course Learning Objectives:

The goal of the Geology undergraduate program is to equip students with the fundamental knowledge of the diverse fields of Geology (encompassing Geomorphology & Surface Processes, Hydrology & Low-Temperature Geochemistry, Sedimentology & Paleoecology, and Tectonics and Solid-Earth Processes). In addition, it is critical that students learn to think like a scientist and to apply the scientific method in their coursework and in their lives. It helps to know the geologic time scale and place important geologic events in a temporal framework.

Course Contents:

1. Introduction and scope of geology; importance and relationship with other sciences;
2. History and philosophy of geology; Earth as a member of the solar system;
3. Earth's origin, age, composition and internal structure;
4. Introduction to plate tectonics, Isostasy; mountain building processes;
5. Earthquakes and volcanoes; weathering and erosion;
6. Introduction, identification and classification of rocks and minerals;
7. Sedimentary, igneous and metamorphic structures;
8. Introduction to fossils in sedimentary rocks;
9. Introduction to folds, faults, joints, cleavage, foliation, lineation and unconformities;
10. Geological Time Scale; Law of Superposition, present is key to the past and Law of Faunal Succession;
11. Concept and techniques of geological dating, relative and absolute dating; evolution of life on earth;
12. Use of Brunton Compass and GPS, etc.

Recommended Texts

1. Plummer, C. C., Carlson, D. H., & Hammersley, L. (2016). *Physical geology*. New York: McGraw-Hill.
2. Plummer, C. C., McGeary, D., & Carlson, D. H. (2000). *Physical Geology: Earth Revealed*. New York: McGraw-Hill.

Suggested Readings

1. McGeary, D., Carlson, D. H., & Plummer, C. C. (2011). *Physical geology*. New York: McGraw-Hill.
2. Smith, G., & Pun, A. (2013). *How Does Earth Work? Physical Geology and the Process of Science: Pearson New International Edition*. London: Pearson Higher Education.
3. McClay, K. R. (1999). *The mapping of geological structures*. Hoboken: John Wiley & Sons.

M.F

GEOG- 6118	Environmental Geography	3(3-0)

Course Brief:

Environmental Geography, one of the most traditional parts of the discipline of Geography, encompasses natural science, social science, and humanistic understandings of the Earth's environment. Environmental Geographers study the complex relationships between humans and the natural environment over time and through space.

Course Learning Objectives:

This course will provide a historical, geographical, and humanistic foundation for understanding the environment and the plethora of environmental issues that confront us at the beginning of this century. It is a major aim of this course to produce environmentally aware students and to equip them with skills to enable them to become future decision-makers on environmental matters in whatever field they wish to pursue in the future. By studying this course students will be able to recognize what the issues are, and to view them from a geographic perspective. They will recognize the responsibilities they have in relation to other people, the environment, and sustainability, and there will be opportunities to initiate personal action.

Course Contents:

1. Evolution of Environmental Studies in Geography
2. Comparative Advantage of Geography
3. Concept of environmental management
4. Environment and Man interaction, Ecosystem, natural resources
5. Important Cycles
6. Population explosion, The human impact on the environment
7. Environmental hazards, Types of Hazards
8. Major Environmental hazards and Problems in Pakistan: Floods, Earthquake, Tsunami, Cyclones, Landslides, Droughts, Deforestation and Desertification
9. Water-logging and Salinity
10. Soil Erosion
11. Global Warming and ozone depletion
12. Environmental Pollution , Waste Management, Control and Mitigation Measures, Technology, awareness, Legislation, Ethics
13. Pakistan Environmental Act
14. National Conservation Strategy
15. National Environmental Quality Standard

Recommended Texts:

1. Arms, K. (2001). *Environmental science.* Philadelphia: Asunders College Publishing.
2. Basak, A. (2009). *Environmental studies.*New Delhi: Pearson.

Suggested Readings:

1. otkin, D. B. & Edward A. K. (2012). *Environmental science.*Hoboken: John Wiley & Sons.
2. Burton, I. R., W. Kates& Gilbert. F. W. (2000). *The environment as hazard.*Karachi. Oxford University Press.
3. Cunningham, W. P. (2007). *Environmental science: a global concern.* Boston: McGraw-Hill Higher Education.

m.f

GEOG – 5109	Climatology	3(3-0)

Course Brief:

The course provides an overview of the physical processes responsible for determining global and regional climate. This course gives a general introduction to meteorology and climatology. Meteorology topics include energy balance, moisture and cloud development in the atmosphere, atmospheric dynamics, small and large scale circulations, storms and cyclones, and weather forecasting. Climatology topics include the interaction between the atmosphere and oceans over long time periods, climate classification, and the potential for climatic change. It brings together information from rural communities, indigenous peoples and research workers on how they use agro- biodiversity to cope with climate change.

Course Learning Objectives:

It stimulates communication between agro-biodiversity researchers, users and maintainers. It identifies tools and practices relevant to using agro-biodiversity for coping with climate change and making these widely available. It also promotes awareness of the vital role of agro-biodiversity in adapting to climate change among key audiences, including donors, development agents and the global biodiversity community.

Course Contents:

1. Introduction.
2. Key concepts in climatology and meteorology.
3. Structure and composition of atmosphere.
4. Elements and factors of climate.
5. Insolation and Terrestrial heat budget.
6. Temperature distribution.
7. Humidity and its types; Condensation and their forms, Precipitation, formation and their types.
8. Atmospheric Pressure and global pressure belts.
9. Atmospheric Circulation: (Upper and Lower) air stability and instability, storms; Cyclones (hurricanes, typhoons) and tornadoes
10. Air masses and fronts.
11. Classification of climates; critical study of the Koppen, Miller and Thornthwaite classifications of major climates.
12. Climate variability and climate change: Natural and anthropogenic; Greenhouse gasses; global warming; acid rain, ozone layer depletion El-Niño and La-Niña, impact on precipitation distribution.
13. Climatic regions of Pakistan and their characteristics
14. Climatic data: sources, collection, analysis and presentation. Problems associated with data quality (spatial, temporal).

Recommended Texts:

1. Miller A. (2001). *Climatology*. Haryana: Shubhi Publications.
2. Barry. R. (1998). *Atmosphere, weather and climate*. London: Routledge.

Suggested Readings:

1. Shamshad, K.M. (1988). *The meteorology of Pakistan*. Karachi: Royal Book Co.
2. Strahler, A. N. (1998). *Elements of physical geography*. New York: John Wiley.
3. Diwan A. P. &Arora. D. K. (1995). *Origin of ocean*. New York: John Wiley.

M.F

GEOG - 6121	Geography of Pakistan	3(3-0)

Course Brief:

Pakistan Geography is a vital topic for study because it allows a student to understand the planet in a way that clarifies various global political issues and to see the relationship between people, groups and the physical environment in which they live. Geography gives us information about various types of climates, natural conditions, mineral wealth etc. of the various nations.

Course Learning Objectives:

As the world becomes more interrelated and interdependent through technological advances, it is increasingly important to understand the physical and cultural differences of other places. Studying of Pakistan geography also opens a link to understanding the history of one's own culture, as well as that of others. An understanding of geography also allows one to make smart choices when dealing with issues regarding the relationship of society to the physical environment.

Course Contents:

1. Introduction
2. Geo-strategic position of Pakistan
3. Location and Geographical significance
4. Geo-political Importance
5. Administrative setup
6. Land and Physical Environment:
7. Physiography
8. Climate and climatic regions o Hydrology
9. Soils and vegetation
10. The People
11. Population characteristics: structure, composition and distribution
12. Population Change
13. Urbanization
14. Economy
15. Agriculture (crops and livestock)
16. Irrigation
17. Power and mineral resources
18. Industries
19. Trade
20. Tourism
21. Transport and Communication
22. Major challenges of Pakistan
23. Water, power, security and environmental issues

Recommended Texts:

1. Khan, F. K. (2015). *Geography of Pakistan.*Karachi: Oxford University Press.
2. Ahmad, K. S. (2000). *Geography of Pakistan.* Karachi: Oxford University Press.

Suggested Readings:

1. Burkey, J. S. (1991). *Pakistan the continuing search for nationhood.*Oxford: Western Press Oxford.
2. Davidson, A. P. & Ahmad, M. (2003). *Privatization and the crisis of agricultural extension: the case of pakistan, king's soas studies in development geography.*New Delhi: Ashgate Publishing.

M.F

GEOG -6119	Urban Geography	3(3-0)

Course Brief:

This course explores the setting in which more than half of the world's people live--the city. Cities are the largest human artifacts, but how do they emerge and evolve? What are the similarities and differences between cities? Why is the Central Business District of some cities thriving while others decline? These and many other questions are examined by urban geographers. This course will explore and analyze the various aspects, concepts and approaches of urban geography. The course will cover topics such as historic and contemporary urban development; spatial dimensions of the city; social and economic patterns; images of the city; inequality and the development of urban built environment.Throughout history, cities have been the centers of economic, political, and cultural life. Further, many of the critical issues of our time--social polarization, economic restructuring, environmental degradation, and poverty--are concentrated in urban areas.

Course Learning Objectives:

This course explores the relationships among cities in a global urban system as well as the internal spatial arrangement of cities. It asks questions about how people structure the spaces of cities as well as about how people's lives are affected by the ways cities are structured.

Course Contents:

1. Origin of towns.
2. Site and situation concept.
3. Process of urbanization in the world.
4. Urban function, economic base of urban centers.
5. Formal and functional classification of towns
6. Towns as central place
7. Urban hinterland.
8. Urban structure-different theories
9. Hierarchy of settlements-city size distribution
10. Rank size Rule
11. Law of primate city.
12. Urban expansion, metropolitan decentralization
13. Rural urban fringe-urban social life.

Recommended Texts:

1. Pacione, M. (2013). *Urban geography: A global perspective*. London: Routledge.
2. Wheeler, J. O., & Holloway, S. R. (2004). *Urban geography*. Hoboken: John Wiley & Sons Inc

Suggested Readings:

1. Douglas, I., Goode, D., Houck, M., & Wang, R. (Eds.). (2010). *Handbook of urban ecology*. London: Routledge.
2. Mayer H.M. & Kohn C.F. (2000). *Readings in urban geography*. Chicago: University of Chicago Press. Smailes, A.E. (2000).*The geography of towns*. London: Hutchinson and Co.

M.F

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GEOG - 6128	Regional Planning & Development	3(3-0)

Course Brief:

Regional planning deals with the efficient placement of land-use activities, infrastructure, and settlement growth across a larger area of land than an individual city or town. Regional planning is a sub-field of urban planning as it relates land use practices on a broader scale. This course will explore and analyze the various aspects, concepts and approaches of urban geography.

Course Learning Objectives:

The course will cover topics such as historic and contemporary urban development; spatial dimensions of the city; social and economic patterns; images of the city; inequality and the development of urban built environment. It also includes formulating laws that will guide the efficient planning and management of such said regions. Regions require various land uses; protection of farmland, cities, industrial space, transportation hubs and infrastructure, military bases, and wilderness. Regional planning is the science of efficient placement of infrastructure and zoning for the sustainable growth of a region.

Course Contents:

1. Principles and Scope of Planning and Development
2. Planning: A Geographer's View, ii. Planning Processes
3. Planning as an Activity
4. Objectives in Planning
5. Objectives of Regional Development Efforts.
6. Implications of Regional Development:
7. Defining Regions, ii Regional Hierarchy and Classification, iii. Regionalism or Administrative Boundaries?, iv. Determining Regional Boundaries, v. Factors contributing to Uniformities and Disparities in Regions,
8. Resources and Planning:
9. The Resource Base.
10. Resource Evaluation.
11. Utilization of Resources for Planning and Development.
12. Urban and Regional Planning:
13. Urban Growth Patterns.
14. Impact of Industrialization.
15. Planning for Cities and City Regions.
16. Rural Planning:
17. Agricultural Planning and Rural Development.

Recommended Texts:

1. Hall, P. (2000). *Urban and regional planning*(2nd ed.). London: Allen &Unwin.
2. Hudson, R. & Lewis J.R. (2000). *Regional planning in Europe*.London: Pion Ltd.

Suggested Readings:

1. Birmingham, W., & Ford, A.G., (2000). *Planning and growth in rich and poor countries.* London: George Allen and Unwin Ltd.
2. Cox, K. R. (2000). *Location and public problems.*Oxford: Basil Black Well.
3. Frey H. (1999). *Designing the city towards a more sustainable Urban Form.*London: Routledge.

M.F

GEOL - 6122	Environmental Geology	3(3-0)

Course Brief:
This course is designed to acquire the knowledge about the role of geology in the environmental degradation. As a discipline, environmental geology deals with using geological knowledge to address interactions between humans and the physical environment: the biosphere, the lithosphere, the hydrosphere, and, to some degree, the atmosphere. Environmental geology is a multidisciplinary subject that covers a broad range of topics, ranging from Earth materials and their use to Earth processes, including natural hazards and their impact on human lives. The environmental effects of exploring Earth resources is also an integral component of the course.

Course Learning Objectives:
This course will enable the students to learn how the various geological processes and related human activities are involved in contaminating our ecosystem. managing geological and hydrogeological resources such as fossil fuels, minerals, water (surface and ground water), and land use. Studying the earth's surface through the disciplines of geomorphology, and defining and mitigating exposure of natural hazards on humans managing industrial and domestic waste disposal and minimizing or eliminating effects of pollution, and performing associated activities, often involving litigation.

Course Contents:
1. Introduction to environmental geology, management of natural resources, climatic changes.
2. Environmental controls for erosion, desertification and coastal degradation.
3. Introduction to environmental impact assessment and initial environmental examination.
4. Environmental impact of mining, dams, reservoirs.
5. Environmental impact of Highways, their assessment and controls.
6. Geological hazards such as floods, landslides.
7. Earthquakes, tsunamis, volcanoes.
8. Glaciers and shoreline processes and their remedial measures;
9. Industrial pollution, solid and liquid waste disposal.
10. Groundwater contaminations.
11. River lake and marine pollution and their impact on human health.
12. Clean sources of energy, introduction to acid mine drainage.

Recommended Texts:

1. Pipkin, B. W., Trent, D. D., Hazlett, R., & Bierman, P. (2013). *Geology and the Environment.* Boston: Cengage Learning.
2. Knödel, K., Lange, G., & Voigt, H. J. (2007). *Environmental geology: handbook of field methods and case studies.* Amsterdam: Springer Science & Business Media.

Suggested Readings:

1. Montgomery, C. W. (1992). *Environmental Geology.* Dubuque: Wm C. Brown Publishers.
2. Armand, N. A., & Polyakov, V. M. (2004). *Radio propagation and remote sensing of the environment.* New York: CRC Press.
3. Pipkin, B. W., Trent, D. D., Hazlett, R., & Bierman, P. (2013). *Geology and the Environment.* Boston: Cengage Learning.

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GEOG - 6131	Conservation of Resources	3(3-0)

Course Brief:

Natural resources conservation workers strive to protect natural resources, such as water, soils, minerals, forests and wildlife. Studies in natural resources conservation are multidisciplinary, covering topics in resource management, recreation, development and ecosystems. Conservation includes both the protection and rational use of natural resources.

Course Learning Objectives:

Earth's natural resources are either nonrenewable, such as minerals, oil, gas, and coal, or renewable, such as water, timber, fisheries, and agricultural crops. We need to conserve our Natural Resources because it is the main source of our daily needs. We need to conserve it because they are limited only. And if these resources are abused and harmed, we will have short quantity of sources for food and living. Remember our future generation will need also our Natural Resources.

Course Contents:

1. Scope of the subject; its importance, problems created by the expanding population
2. Advancing technology, increasing standings of living and greater demand for space and goods thereof
3. Relation of subject to other disciplines.
4. Agricultural Resources, Agriculture and man. Types of agriculture, agricultural land use and cropping pattern. Efficiency of agriculture, problems relating to agricultural land. Agricultural regions of the work.
5. Animal Resources: Ranching and pasture, problems of overgrazing, carrying capacity of land, recent changes in ranching brought about by scientific agriculture feedlots and custom feeding, modern range management.
6. Problems of Human Population: Population distribution in different ecosystems, and different societies (with different technical skill), rate of growth of population. Relationship between man, his skills and natural resources. Rural land planning in developed and developing countries. Differences in interpretation of resources. Control of population size, dangers of over population.

Suggested Readings:

1. Bert, R. (2006). *Infrastructure: the social value of shared resources.* New York: Oxford University Press.
2. Dunster, K. (2011). *Dictionary of natural resource management.* Amsterdam: UBC press.

Recommended Texts:

1. Coutts, C. (2016). *Green infrastructure and public health.* London: Routledge.
2. Niles, E. (2003). *Life on earth: An encyclopedia of biodiversity, ecology, and evolution.* California: ABS-CLIO.
3. Burley, J. (2004). *Encyclopedia of forest sciences.* New Delhi: Academic Press.

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