

# POSTGRADUATE DEGREE COURSE

## AUDIT COURSE



**RAJASTHAN TECHNICAL UNIVERSITY, KOTA**

Session 2020-21

**AUDIT Course- 1 (2MCC3-22) and AUDIT Course-2: (3MCC3-22)**  
**ENGLISH FOR RESEARCH PAPER WRITING**

<b>Syllabus</b>		
<b>Units</b>	<b>Course Contents</b>	<b>Contact Hours</b>
1	<ul style="list-style-type: none"> <li>• Planning and Preparation, Word Order, Breaking up long sentences, Structuring Paragraphs and Sentences, Being Concise and Removing Redundancy, Avoiding Ambiguity and Vagueness.</li> </ul>	4
2	<ul style="list-style-type: none"> <li>• Clarifying Who Did What, Highlighting Your Findings, Hedging and Criticising, Paraphrasing and Plagiarism, Sections of a Paper, Abstracts. Introduction.</li> </ul>	4
3	<ul style="list-style-type: none"> <li>• Review of the Literature, Methods, Results, Discussion, Conclusions, The Final Check.</li> </ul>	4
4	<ul style="list-style-type: none"> <li>• Key skills are needed when writing a Title, key skills are needed when writing an Abstract, key skills are needed when writing an Introduction, skills needed when writing a Review of the Literature.</li> </ul>	4
5	<ul style="list-style-type: none"> <li>• Skills are needed when writing the Methods, skills needed when writing the Results, skills are needed when writing the Discussion, skills are needed when writing the Conclusions.</li> </ul>	4
6	<ul style="list-style-type: none"> <li>• Useful phrases, how to ensure paper is as good as it could possibly be the first- time submission.</li> </ul>	4

**Suggested Studies:**

1. Goldbort R (2006) Writing for Science, Yale University Press (available on Google Books).
2. Day R (2006) How to Write and Publish a Scientific Paper, Cambridge University Press.
3. Highman N (1998), Handbook of Writing for the Mathematical Sciences, SIAM. Highman's book.
4. Adrian Wallwork, English for Writing Research Papers, Springer New York Dordrecht Heidelberg London, 2011.

**AUDIT Course- 1 (2MCC3-23) and AUDIT Course-2: (3MCC3-23)**

**DISASTER MANAGEMENT**

<b>Syllabus</b>		
<b>Units</b>	<b>Course Contents</b>	<b>Contact Hours</b>
1	<p><b>Introduction:</b></p> <ul style="list-style-type: none"> <li>Disaster: Definition, Factors And Significance; Difference Between Hazard And Disaster; Natural And Manmade Disasters: Difference, Nature, Types And Magnitude.</li> </ul>	4
2	<p><b>Repercussions of Disasters And Hazards:</b></p> <ul style="list-style-type: none"> <li>Economic Damage, Loss Of Human And Animal Life, Destruction Of Ecosystem. Natural Disasters: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts And Famines, Landslides And Avalanches, Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks And Spills, Outbreaks Of Disease And Epidemics, War And Conflicts.</li> </ul>	4
3	<p><b>Disaster Prone Areas In India:</b></p> <ul style="list-style-type: none"> <li>Study Of Seismic Zones; Areas Prone To Floods And Droughts, Landslides And Avalanches; Areas Prone To Cyclonic And Coastal Hazards With Special Reference To Tsunami; Post-Disaster Diseases And Epidemics.</li> </ul>	4
4	<p><b>Disaster Preparedness And Management:</b></p> <ul style="list-style-type: none"> <li>Preparedness: Monitoring of Phenomena Triggering A Disaster Or Hazard; Evaluation of Risk: Application Of Remote Sensing, Data From Meteorological And Other Agencies, Media Reports: Governmental And Community Preparedness.</li> </ul>	4
5	<p><b>Risk Assessment:</b></p> <ul style="list-style-type: none"> <li>Disaster Risk: Concept And Elements, Disaster Risk Reduction, Global And National Disaster Risk Situation. Techniques Of Risk Assessment, Global Co Operation In Risk Assessment And Warning, People's Participation In Risk Assessment. Strategies for Survival.</li> </ul>	4
6	<p><b>Disaster Mitigation:</b></p> <ul style="list-style-type: none"> <li>Meaning, Concept And Strategies Of Disaster Mitigation, Emerging Trends In Mitigation. Structural Mitigation And Non-Structural Mitigation, Programs Of Disaster Mitigation In India.</li> </ul>	4

**SUGGESTED READINGS:**

- R. Nishith, Singh AK, "Disaster Management in India: Perspectives, issues and strategies "New Royal book Company.
- Sahni, PardeepEt.Al. (Eds.)," Disaster Mitigation Experiences And Reflections", Prentice Hall Of India, New Delhi.
- Goel S. L., Disaster Administration And Management Text And Case Studies", Deep & Deep Publication Pvt. Ltd., New Delhi.

**AUDIT Course- 1 (2MCC3-24) and AUDIT Course-2: (3MCC3-24)**

**SANSKRIT FOR TECHNICAL KNOWLEDGE**

<b>Syllabus</b>		
<b>Unit</b>	<b>Course Contents</b>	<b>Contact Hours</b>
1	<ul style="list-style-type: none"><li>• Alphabets in Sanskrit.</li><li>• Past/Present/Future Tense.</li><li>• Simple Sentences.</li></ul>	8
2	<ul style="list-style-type: none"><li>• Order.</li><li>• Introduction of roots.</li><li>• Technical information about Sanskrit Literature.</li></ul>	8
3	<ul style="list-style-type: none"><li>• Technical concepts of Engineering-Electrical, Mechanical.</li><li>• Architecture, Mathematics.</li></ul>	8

**Suggested reading:**

1. “Abhyaspustakam” – Dr.Vishwas, Samskrita-Bharti Publication, New Delhi.
2. “Teach Yourself Sanskrit” Prathama Deeksha-VempatiKutumbshastri, Rashtriya Sanskrit Sansthanam, New Delhi Publication.
3. “India’s Glorious Scientific Tradition” Suresh Soni, Ocean books (P) Ltd., New Delhi.

**AUDIT Course- 1 (2MCC3-25) and AUDIT Course-2: (3MCC3-25)**  
**VALUE EDUCATION**

<b>Syllabus</b>		
<b>Unit</b>	<b>Course Contents</b>	<b>Contact Hours</b>
1	<ul style="list-style-type: none"> <li>● Values and self-development –Social values and individual attitudes. Work ethics, Indian vision of humanism.</li> <li>● Moral and non- moral valuation. Standards and principles.</li> <li>● Value judgments.</li> </ul>	4
2	<ul style="list-style-type: none"> <li>● Importance of cultivation of values.</li> <li>● Sense of duty. Devotion, Self-reliance. Confidence, Concentration. Truthfulness, Cleanliness.</li> <li>● Honesty, Humanity. Power of faith, National Unity.</li> <li>● Patriotism, Love for nature, Discipline.</li> </ul>	6
3	<ul style="list-style-type: none"> <li>● Personality and Behavior Development - Soul and Scientific attitude. Positive Thinking. Integrity and discipline.</li> <li>● Punctuality, Love and Kindness.</li> <li>● Avoid fault Thinking.</li> <li>● Free from anger, Dignity of labor.</li> <li>● Universal brotherhood and religious tolerance.</li> <li>● True friendship.</li> <li>● Happiness Vs suffering, love for truth.</li> <li>● Aware of self-destructive habits.</li> <li>● Association and Cooperation.</li> <li>● Doing best for saving nature.</li> </ul>	6
4	<ul style="list-style-type: none"> <li>● Character and Competence –Holy books vs Blind faith.</li> <li>● Self-management and Good health.</li> <li>● Science of reincarnation.</li> <li>● Equality, Nonviolence, Humility, Role of Women.</li> <li>● All religions and same message.</li> <li>● Mind your Mind, Self-control.</li> <li>● Honesty, Studying effectively</li> </ul>	6

**Suggested reading:**

1. Chakroborty, S.K. “Values and Ethics for organizations Theory and practice”, Oxford University Press, New Delhi.

**AUDIT Course- 1 (2MCC3-26) and AUDIT Course-2: (3MCC3-26)**

**CONSTITUTION OF INDIA**

<b>Syllabus</b>		
<b>Unit</b>	<b>Course Contents</b>	<b>Contact Hours</b>
1	<b>History of Making of the Indian Constitution:</b> <ul style="list-style-type: none"> <li>• History.</li> <li>• Drafting Committee, (Composition &amp; Working).</li> </ul>	4
2	<b>Philosophy of the Indian Constitution:</b> <ul style="list-style-type: none"> <li>• Preamble.</li> <li>• Salient.</li> <li>• Features.</li> </ul>	4
3	<b>Contours of Constitutional Rights &amp; Duties:</b> <ul style="list-style-type: none"> <li>• Fundamental Rights.</li> <li>• Right to Equality.</li> <li>• Right to Freedom.</li> <li>• Right against Exploitation.</li> <li>• Right to Freedom of Religion.</li> <li>• Cultural and Educational Rights.</li> <li>• Right to Constitutional Remedies.</li> <li>• Directive Principles of State Policy.</li> <li>• Fundamental Duties.</li> </ul>	4
4	<b>Organs of Governance:</b> <ul style="list-style-type: none"> <li>• Parliament.</li> <li>• Composition.</li> <li>• Qualifications and Disqualifications.</li> <li>• Powers and Functions..</li> <li>• Executive.</li> <li>• President.</li> <li>• Governor.</li> <li>• Council of Ministers.</li> <li>• Judiciary, Appointment and Transfer of Judges, Qualifications.</li> <li>• Powers and Functions.</li> </ul>	4
5	<b>Local Administration:</b> <ul style="list-style-type: none"> <li>• District's Administration head: Role and Importance.</li> <li>• Municipalities: Introduction, Mayor and role of Elected Representative CEO of Municipal Corporation.</li> <li>• Pachayati raj: Introduction, PRI: ZilaPachayat.</li> <li>• Elected officials and their roles, CEO ZilaPachayat: Position and role.</li> <li>• Block level: Organizational Hierarchy (Different departments).</li> <li>• Village level: Role of Elected and Appointed officials.</li> <li>• Importance of grass root democracy.</li> </ul>	4
6	<b>Election Commission:</b> <ul style="list-style-type: none"> <li>• Election Commission: Role and Functioning.</li> <li>• Chief Election Commissioner and Election Commissioners.</li> <li>• State Election Commission: Role and Functioning.</li> <li>• Institute and Bodies for the welfare of SC/ST/OBC and women.</li> </ul>	4

**Suggested reading:**

1. The Constitution of India, 1950 (Bare Act), Government Publication.
2. Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis,

**AUDIT Course- 1 (2MCC3-27) and AUDIT Course-2: (3MCC3-27)**  
**PEDAGOGY STUDIES**

<b>Syllabus</b>		
<b>Unit</b>	<b>Course Contents</b>	<b>Contact Hours</b>
1	<p><b>Introduction and Methodology:</b></p> <ul style="list-style-type: none"> <li>• Aims and rationale, Policy background, Conceptual framework and terminology.</li> <li>• Theories of learning, Curriculum, Teacher education.</li> <li>• Conceptual framework, Research questions.</li> <li>• Overview of methodology and Searching.</li> </ul>	4
2	<ul style="list-style-type: none"> <li>• Thematic overview: Pedagogical practices are being used by teachers in formal and informal classrooms in developing countries.</li> <li>• Curriculum, Teacher education.</li> </ul>	2
3	<ul style="list-style-type: none"> <li>• Evidence on the effectiveness of pedagogical practices.</li> <li>• Methodology for the in depth stage: quality assessment of included studies.</li> <li>• How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?</li> <li>• Theory of change.</li> <li>• Strength and nature of the body of evidence for effective pedagogical practices.</li> <li>• Pedagogic theory and pedagogical approaches.</li> <li>• Teachers' attitudes and beliefs and Pedagogic strategies.</li> </ul>	4
4	<ul style="list-style-type: none"> <li>• Professional development: alignment with classroom practices and follow-up support.</li> <li>• Peer support.</li> <li>• Support from the head teacher and the community.</li> <li>• Curriculum and assessment.</li> <li>• Barriers to learning: limited resources and large class sizes.</li> </ul>	4
5	<p><b>Research gaps and future directions</b></p> <ul style="list-style-type: none"> <li>• Research design.</li> <li>• Contexts.</li> <li>• Pedagogy.</li> <li>• Teacher education.</li> <li>• Curriculum and assessment.</li> <li>• Dissemination and research impact.</li> </ul>	2

**Suggested reading:**

1. Ackers J, Hardman F (2001) Classroom interaction in Kenyan primary schools, *Compare*, 31 (2): 245-261.
2. Agrawal M (2004) Curricular reform in schools: The importance of evaluation, *Journal of Curriculum Studies*, 36 (3): 361-379.
3. Akyeampong K (2003) Teacher training in Ghana - does it count? Multi-site teacher education research project (MUSTER) country report 1. London: DFID.
4. Akyeampong K, Lussier K, Pryor J, Westbrook J (2013) Improving teaching and learning of basic maths and reading in Africa: Does teacher preparation count? *International Journal Educational Development*, 33 (3): 272-282.
5. Alexander RJ (2001) *Culture and pedagogy: International comparisons in primary education*. Oxford and Boston: Blackwell.
6. Chavan M (2003) *Read India: A mass scale, rapid, 'learning to read' campaign*.
7. [www.pratham.org/images/resource%20working%20paper%202.pdf](http://www.pratham.org/images/resource%20working%20paper%202.pdf).

**AUDIT Course- 1 (2MCC3-28) and AUDIT Course-2: (3MCC3-28)**

**STRESS MANAGEMENT BY YOGA**

<b>Syllabus</b>		
<b>Unit</b>	<b>Course CONTENTS</b>	<b>Contact Hours</b>
1	• Definitions of Eight parts of yog. ( Ashtanga )	8
2	• Yam and Niyam. • Do's and Don't's in life. i) Ahinsa, satya, astheya, bramhacharya and aparigraha. ii) Shaucha, santosh, tapa, swadhyay, ishwarpranidhan.	8
3	• Asan and Pranayam i) Various yog poses and their benefits for mind & body. ii) Regularization of breathing techniques and its effects-Types of pranayam.	8

**Suggested reading:**

1. 'Yogic Asanas for Group Training-Part-I' :Janardan Swami Yogabhyasi Mandal, Nagpur.
2. "Rajayoga or conquering the Internal Nature" by Swami Vivekananda, AdvaitaAshrama (Publication Department), Kolkata.



**AUDIT Course- 1 (2MCC3-29) and AUDIT Course-2: (3MCC3-29)**  
**PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS**

<b>Syllabus</b>		
<b>Unit</b>	<b>Course Contents</b>	<b>Contact Hours</b>
1	<p><b>Neetisatakam-Holistic development of personality.</b></p> <ul style="list-style-type: none"> <li>• Verses- 19,20,21,22 (wisdom).</li> <li>• Verses- 29,31,32 (pride &amp; heroism).</li> <li>• Verses- 26,28,63,65 (virtue).</li> <li>• Verses- 52,53,59 (dont's).</li> <li>• Verses- 71,73,75,78 (do's).</li> </ul>	8
2	<ul style="list-style-type: none"> <li>• Approach to day to day work and duties.</li> <li>• Shrimad BhagwadGeeta : Chapter 2-Verses 41, 47,48.</li> <li>• Chapter 3-Verses 13, 21, 27, 35, Chapter 6-Verses 5,13,17, 23, 35.</li> <li>• Chapter 18-Verses 45, 46, 48.</li> </ul>	8
3	<ul style="list-style-type: none"> <li>• Statements of basic knowledge.</li> <li>• Shrimad BhagwadGeeta: Chapter2-Verses 56, 62, 68.</li> <li>• Chapter 12 -Verses 13, 14, 15, 16,17, 18.</li> <li>• Personality of Role model. Shrimad BhagwadGeeta: Chapter2-Verses 17, Chapter 3-Verses 36,37,42.</li> <li>• Chapter 4-Verses 18, 38,39.</li> <li>• Chapter18 – Verses 37,38,63.</li> </ul>	8

**Suggested reading:**

1. “Srimad Bhagavad Gita” by Swami SwarupanandaAdvaita Ashram (Publication Department), Kolkata.
2. Bhartrihari’s Three Satakam (Niti-sringar-vairagya) by P.Gopinath,
3. Rashtriya Sanskrit Sansthanam, New Delhi.

**AUDIT Course- 1 (2MCC3-30) and AUDIT Course-2: (3MCC3-30)**  
**IoT and Machine Learning**

<b>Syllabus</b>		
<b>Unit</b>	<b>Course Contents</b>	<b>Contact Hours</b>
1	<b>Introduction to IoT and Machine Learning</b>	1
2	<p><b>IoT:</b></p> <ul style="list-style-type: none"> <li>• What is IoT, how does it work? Difference between Embedded device and IoT device, Properties of IoT device, IoT Ecosystem, IoT Decision Framework, IoT Solution Architecture Models, Major IoT Boards in Market.</li> </ul> <p><b>Setting Up Raspberry/Arduino to Create Solutions:</b></p> <ul style="list-style-type: none"> <li>• Explore Raspberry Pi, Setting up Raspberry Pi, Showing working of Raspberry Pi using SSH Client and Team Viewer, Understand Sensing actions, Understand Actuators and MEMS.</li> </ul>	5
3	<p><b>Communication Protocols used in IoT:</b></p> <ul style="list-style-type: none"> <li>• Types of wireless communication, Major wireless Short Range communication devices, properties, comparison of these devices (Bluetooth, WIFI, ZigBee, 6LoWPAN) Major wireless Long-range communication devices, properties, comparison of these devices (cellular IoT, LPWAN)</li> </ul> <p><b>IoT Applications:</b></p> <ul style="list-style-type: none"> <li>• Industrial Internet 4.0, Applications such as: Smart home, wearables, smart city, smart grid, connected car, connected health(digital health, telehealth, telemedicine), smart retail.</li> </ul>	6
4	<p><b>Sensors:</b></p> <ul style="list-style-type: none"> <li>• Applications of various sensors: Google Maps, Waze, Whats App, Ola Positioning sensors: encoders and accelerometers, Image sensors: cameras, Global positioning sensors: GPS, GLONASS, IRNSS, Galileo and indoor localization systems, Motion &amp; Orientation Sensors: Accelerometer, Magnetometer, Proximity Sensor, Gyroscope Calibration, noise modeling and characterization and-noise filtering and sensor data processing. Privacy&amp;Security.</li> </ul>	4
5	<p><b>Basics of Machine Learning:</b></p> <ul style="list-style-type: none"> <li>• Applications of Machine Learning, processes involved in Machine Learning, Introduction to Machine Learning Techniques: Supervised Learning, Unsupervised Learning and Reinforcement Learning, Real life examples of Machine Learning.</li> </ul>	6
6	<p><b>Supervised Learning:</b></p> <ul style="list-style-type: none"> <li>• Classification and Regression: K-Nearest Neighbor, Linear Regression, Logistic Regression, Support Vector Machine (SVM), Evaluation Measures: SSE, MME, R<sup>2</sup>, confusion matrix, precision, recall, F Score, ROC-Curve.</li> </ul> <p><b>Unsupervised Learning:</b></p> <ul style="list-style-type: none"> <li>• Introduction to clustering, Types of Clustering: Hierarchical- Agglomerative Clustering and Divisive clustering; Partitioned Clustering- K-means clustering, Principal Component Analysis, ICA.</li> </ul>	6

**Suggested reading:**

- 1 CunoPfister, Getting Started with the Internet of Things, Oreilly Media 2011.
- 2 Kyung, C.-M., Yasuura, H., Liu, Y., Lin, Y.-L., Smart Sensors and Systems, Springer International Publishing 2015.
- 3 Vijay Madiseti and Arshdeep Bahga, Internet of Things (A Hands-on Approach), 1st Edition, VPT 2014
- 4 Francis da Costa, Rethinking the Internet of Things: A Scalable Approach to Connecting Everything, 1st Edition, Apress Publications 2013
- 5 Christopher M. Bishop, Pattern Recognition and Machine Learning, Springer, 2011  
T. Hastie, R. Tibshirani, J. Friedman. The Elements of Statistical Learning, 2 editions, 2008.

**AUDIT Course- 1 (2MCC3-31) and AUDIT Course-2: (3MCC3-31)**  
**Data Analytics using Python**

<b>Syllabus</b>		
<b>Unit</b>	<b>Course Contents</b>	<b>Contact Hours</b>
1	<b>Introduction:</b> <ul style="list-style-type: none"> <li>Objectives, scope, and outcomes of the course.</li> </ul>	1
2	<b>Introduction:</b> <ul style="list-style-type: none"> <li>Understanding the Data, Python Packages for Data Science, Importing and Exporting Data in Python, Getting Started, Analyzing Data in Python, Accessing Databases with Python.</li> </ul>	5
3	<b>Data Wrangling:</b> <ul style="list-style-type: none"> <li>Pre-processing data in Python, Dealing with Missing Values in Python, Data Formatting in Python, Data Normalization in Python, Binning in Python, Turning categorical variables into quantitative variables in Python.</li> </ul>	5
4	<b>Exploratory Data Analysis:</b> <ul style="list-style-type: none"> <li>Exploratory Data Analysis, Descriptive Statistics, GroupBy in Python, Correlation, Correlation – Statistics, Analysis of Variance ANOVA.</li> </ul>	5
5	<b>Time Series:</b> <ul style="list-style-type: none"> <li>Date and Time Data Types and Tools, Time Series Basics, Date Ranges, Frequencies, and Shifting, Time Zone Handling, Periods and Period Arithmetic, Resampling and Frequency Conversion, Time Series Plotting, Moving Window Functions, Performance and Memory Usage Notes, Time Series Case Study.</li> </ul>	7
6	<b>Data Visualization using Python:</b> <ul style="list-style-type: none"> <li>Introduction to Data Visualization, Introduction to Matplotlib, Basic Plotting with Matplotlib, Line Plots, Area Plots, Histograms, Bar Charts, Pie Charts, Box Plots, Scatter Plots.</li> </ul>	5

**Suggested Readings:**

1. Glenn J. Myatt and Wayne P. Johnson, “Making sense of Data: A practical Guide to Exploratory Data Analysis and Data Mining”.
2. Robert Sedgewick, Kevin Wayne and Robert Dondero, “Introduction to Programming in Python: An Interdisciplinary Approach”.