



पत्र क्रमांक - 19 - 14

**CH. CHARAN SINGH UNIVERSITY, MEERUT  
DEPARTMENT OF PSYCHOLOGY**

Ref. No.: PBN<sub>o</sub>-724

Date: 05/04/2019

**Proceeding of the Board of studies in Psychology**

As per letter Ref. No. Committee Cell (BOS-Psy)/3917 dated 18.02.2019, a meeting of the Board of Studies for Campus Students was held on 15.03.2019 at 11:00 A.M. in the Committee Room, Administrative Block, Choudhary Charan Singh University, Meerut to revise the syllabi of M.A. M.Phil Course in Psychology. The following members were present.

1. Prof. Yogendra Singh, Dean Faculty of Arts, C.C.S. University, Meerut.
2. Prof. Snehlata Jaswal, Deptt. of Psychology, C.C.S. University, Meerut. (Convenor-I)
3. Dr. Y.K.S. Chauhan, N.R.E.C. College Khurja, Bulandshahr.
4. Dr. Vandana Sharma, Deptt. of Psychology, Ismail Girls P.G. College, Meerut.
5. Prof. Satish C. Dhamija, (Rtd.) Gurukul Vishwavidyalaya, Hardiwar.
6. Prof. J.M. Jerath, (Rtd.) Punjab University, Chandigarh.
7. Prof. Nov Rattan Sharma, Deptt. of Psychology, M.D. University, Rohtak, Haryana.
8. Prof. Santha Kumari, Thapar Institute of Engineering and Tech. Patiala.
9. Prof. Narayan Srinivasan, Centre of Behavioural and Cognitive Science, University of Allahabad, Allahabad.
10. Prof. Beer Singh, Deptt. of Psychology, C.C.S. University, Meerut. (Special Invitee)

**Recommendation :**

1. M.A. Psychology admission should be open to all Bachelor degrees.
2. Admission to M.A. Psychology will be on the basis of Merit with weightage given to the study of Psychology at B.A. level and additional weightage for Honors in Psychology.
3. Syllabi for M.A. Psychology and M.Phil Psychology was considered, modified, and approved.
4. The meeting ended with thanks to Chairman, Experts, and Members of the Board.



CH. CHARAN SINGH UNIVERSITY, MEERUT  
DEPARTMENT OF PSYCHOLOGY

Ref. No.: .....

Date:.....

The Description of M.A. Course (2019-2020)

M.A. Semester – I

		Internal Marks	External Marks	Practical	Total
10. Paper 1	Psychology as a science	40	40	20	100
11. Paper 2	Learning, Motivation, and Emotion	40	40	20	100
12. Paper 3	The Psychology of Individual Differences	40	40	20	100
13. Paper 4	Biopsychology	40	40	20	100
					400

M.A. Semester –II

1. Paper 1	Systems of Psychology	40	40	20	100
2. Paper 2	Social Psychology Paper	40	40	20	100
3. Paper 3	Cognitive Psychology	40	40	20	100
4. Paper 4	Inferential Statistics in Psychology	40	40	20	100
					400

M.A. Semester –III

1. Paper 1	Higher Cognitive Processes	40	40	20	100
2. Paper 2	Advanced Quantitative Methods	40	40	20	100
3. Paper 3	Psychopathology	40	40	20	100
<b>* Student to take any three of the following option :-</b>					
4. Paper 4	Option 1 Clinical Psychology	40	40	20	100
Paper 4	Option 2 Human development till-adulthood	40	40	20	100
Paper 4	Option 3 Organizational Psychology	40	40	20	100
					400

M.A. Semester –IV

1. Paper 1	Psychometrics (Compulsory)	40	40	20	100
<b>* Student to take any three of the following option :-</b>					
2. Option 1	Managing behaviour in organizations	40	40	20	100
3. Option 2	Forensic and Criminal Psychology	40	40	20	100
4. Option 3	Health Psychology	40	40	20	100
5. Option 4	Counseling Psychology	40	40	20	100
6. Option 5	The Psychology of Aging	40	40	20	100
7. Option 6	Educational Psychology	40	40	20	100
8. Option 7	Techniques of Counselling and Psychotherapy	40	40	20	100
9. Option 8	Psychology for National Development	40	40	20	100
10. Option 9	Human resource development and Consulting	40	40	20	100
					400

Grand Total: 1600

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DEPARTMENT OF PSYCHOLOGY

Ref. No.: .....

Date:.....

The Description of M.Phil .Course (2019-2020)

M.Phil Semester -I

		Internal Marks	External Marks	Total
1.Paper 1	Research Methods and Statistics	20	80	100
2.Paper 2	Recent Trends in Psychology	20	80	100

M Phil Semester – II

\* Student will take any two of the following options :-

1. Option 1	Environmental Psychology	20	80	100
2. Option 2	Health Psychology	20	80	100
3. Option 3	Advanced Social Psychology	20	80	100
4. Option 4	Neuropsychology	20	80	100
5. Option 5	Clinical Assessment and Diagnoses	20	80	100
6. Option 6	Social Cognitive Neuroscience	20	80	100
7. Option 7	Memory	20	80	100
8. Option 8	Human resource metrics and analytic s	20	80	100
9. Option 9	Leadership and decision making in- organizations	20	80	100

Grand Total : 400

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## M. A. Psychology - Choice Based Credit System - 2019-2021

<b>M.A. Semester I</b>		<b>Credits</b>	<b>Internal</b>	<b>External</b>	<b>Practical</b>	<b>Total</b>
Paper 1	Psychology as a Science	6 (5T+1P)	40	40	20	100
Paper 2	Learning, Motivation, and Emotion	6 (5T+1P)	40	40	20	100
Paper 3	The Psychology of Individual Differences	6 (5T+1P)	40	40	20	100
Paper 4	Biopsychology	6 (5T+1P)	40	40	20	100

<b>M.A. Semester II</b>		<b>Credits</b>	<b>Internal</b>	<b>External</b>	<b>Practical</b>	<b>Total</b>
Paper 1	Systems of Psychology	6 (5T+1P)	40	40	20	100
Paper 2	Social Psychology	6 (5T+1P)	40	40	20	100
Paper 3	Cognitive Psychology	6 (5T+1P)	40	40	20	100
Paper 4	Inferential Statistics in Psychology	6 (5T+1P)	40	40	20	100

<b>M.A. Semester III</b>		<b>Credits</b>	<b>Internal</b>	<b>External</b>	<b>Practical</b>	<b>Total</b>
Paper 1	Higher Cognitive Processes	6 (5T+1P)	40	40	20	100
Paper 2	Advanced Quantitative Methods	6 (5T+1P)	40	40	20	100
Paper 3	Psychopathology	6 (5T+1P)	40	40	20	100

\* Student to take any ONE of the following options as Paper 4:

Option 1	Clinical Psychology	6 (5T+1P)	40	40	20	100
Option 2	Human Development till Adulthood	6 (5T+1P)	40	40	20	100
Option 3	Organizational Psychology	6 (5T+1P)	40	40	20	100

<b>M.A. Semester IV</b>		<b>Credits</b>	<b>Internal</b>	<b>External</b>	<b>Practical</b>	<b>Total</b>
Paper 1	Psychometrics (Compulsory)	6 (5T+1P)	40	40	20	100

\* Student to take any THREE of the following options as Papers 2, 3, and 4:

Option 1	Managing Behaviour in Organizations	6 (5T+1P)	40	40	20	100
Option 2	Forensic and Criminal Psychology	6 (5T+1P)	40	40	20	100
Option 3	Health Psychology	6 (5T+1P)	40	40	20	100
Option 4	Counselling Psychology	6 (5T+1P)	40	40	20	100
Option 5	The Psychology of Aging	6 (5T+1P)	40	40	20	100
Option 6	Educational Psychology	6 (5T+1P)	40	40	20	100
Option 7	Techniques of Counselling and Psychotherapy	6 (5T+1P)	40	40	20	100
Option 8	Psychology for National Development	6 (5T+1P)	40	40	20	100
Option 9	Human Resource Development and Consulting	6 (5T+1P)	40	40	20	100

**Total in each semester – 24 Credits: 400 Marks**

**MA Semester I**  
**Paper 1 Psychology as a science**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

After completing the course students should be able:

1. To appreciate and understand the nature of Psychology as a science
2. To understand the essential concepts and techniques of statistics, enabling collection and analysis of data
3. To apply these concepts and techniques to data sets in Psychology

**Course content**

	Theory for 5 credits (50 hours)
1. Introduction to Psychology	5 hours
• Aims and assumptions of science shared by Psychology	
• Brief history of Psychology	
• Current status of Psychology as a science	
• Problems of Psychology as a Science	
2. Methods of Psychology	6 hours
• Descriptive methods	
• Correlational methods	
• Experimental methods	
3. Measurement and research in Psychology	5 hours
• Concept and scales of measurement, Errors in measurement	
• Quantitative, Qualitative, and mixed methods research	
• Sources of data and sampling techniques	
4. Summarizing and presenting data	6 hours
• Tabulation of data	
• Frequency distributions	
• Graphical representation: Pie chart, Bar diagram, Histogram, Frequency polygon, Ogive, Line graph, Box plot	
• Making graphs and charts using computers	
5. Descriptive statistics	6 hours
• Measures of Central Tendency (Mean, Median, Mode)	
• Measures of Variability (Range, Average deviation, Quartile deviation, Standard deviation, Probable error)	
6. Normal probability distribution	6 hours
• Properties of Normal Probability Curve	
• Divergence from normality and its assessment through various techniques	
• Applications and importance of NPC	
7. Significance of statistics	5 hours
• Meaning of statistics; Descriptive vs. inferential statistics	
• Levels of significance and Errors in statistical decision making	
• Sampling distributions and Confidence intervals	
8. Correlation	6 hours
• Types of correlation	
• Product moment correlation	
• Eta coefficient	
9. Significance of difference between two means	5 hours
• Significance of difference between two correlated groups	
• Significance of difference between two uncorrelated groups	
Any two practicals related to the course	1 credit (20 hours)

Note: Students will learn and practice all statistical techniques on datasets using calculators and/or statistical packages as appropriate.

**Suggested Reading**

Agresti, A. (2017). Statistical methods for the Social Sciences. (5<sup>th</sup> edition). USA: Pearson.  
Gazzaniga, M. & Grison, S. (2018). Psychology in your life. (3<sup>rd</sup> edition). USA: W.W. Norton.  
Howell, D.C. (2017). Fundamental statistics for the behavioural sciences (9<sup>th</sup> edition). USA: Cengage  
Myers, D.G. and DeWall, C. N. (2017). Psychology (12<sup>th</sup> edition). USA: Worth.  
Utts, J.M. (2015). Seeing through statistics (4<sup>th</sup> edition). USA: Cengage.

**MA Semester I**  
**Paper 2 Learning, Motivation, and Emotion**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

Students who finish this course will gain:

- an in-depth understanding of three primary psychological processes – learning, motivation, and emotions
- skills in managing data and disseminating research in ways consistent with research ethics
- a broad understanding and awareness of the importance of findings in learning, motivation, and emotions in human life and functioning

**Course content**

Theory for 5 credits (50 hours)

**1. Learning**

17 hours

- Nature of learning, Differences from maturation, adaptation, habituation, anticipation, and evolution
- Classical conditioning
- Operant conditioning
  
- Avoidance learning
- Probability learning
- Biological limits to learning
  
- Observational learning
- Cognitive theories of learning
- Social learning

**2. Motivation**

17 hours

- Nature and types of motivation
- Psychoanalytical views regarding motivation
- Motivational and emotional brain
  
- Physiological and psychosocial aspects of different types of motives
- Physiological needs and their regulation
- Extrinsic motivation and internalization
  
- Psychological motives – autonomy, competence, relatedness
- Implicit motives – achievement, affiliation, power
- Cognitions and motivation – goal setting and striving, personal control beliefs, mind-sets and dissonance, the self and its strivings

**3. Emotions**

16 hours

- Nature of emotions; Links with motivation
- Types of emotions – Basic emotions, self-conscious emotions, Cognitively complex emotions
  
- Biological aspects of emotions
- Cognitive aspects of emotions
  
- Expression of emotions
- Measurement of emotions
- Control and management of emotions

Any two practicals related to the course

1 credit (20 hours)

**Suggested Reading**

Gazzaniga, M. & Grison, S. (2018). *Psychology in your life.* (3<sup>rd</sup> edition). USA: W.W. Norton.

Myers, D.G. & DeWall, C. N. (2017). *Psychology* (12<sup>th</sup> edition). USA: Worth.

Olson, M.H. & Hergenhahn, B.R. (2013). *An introduction to the theories of learning* (9th Edition). USA: Pearson

Reeve, J. (2017). *Understanding Motivation and Emotion.* (7<sup>th</sup> edition). USA: Wiley

  
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**MA Semester I**  
**Paper 3 The Psychology of Individual Differences**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

Students who finish this course will gain:

- an in-depth understanding of current research and methodology in the psychology of individuals
- skills in managing data and disseminating research in ways consistent with professional practice in the field of individual differences and the normal principles of research ethics
- a broad understanding and awareness of the application of findings in the psychology of individual differences to other areas of human life particularly education health and work

**Course Content**

Theory for 5 credits (50 hours)

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1. Individual differences                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 16 hours            |
| <ul style="list-style-type: none"><li>• A brief history of the study of individual differences</li><li>• Approaches and methods in the study of individual differences</li><li>• Reliability and Validity of measures of individual differences</li><li>• Causes of Individual differences: Genetic vs. Environmental</li><br/><li>• Gender differences</li><li>• Cultural differences</li><li>• Implications of Individual Differences for Education, Health, and Work</li></ul> |                     |
| 2. Personality                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 17 hours            |
| <ul style="list-style-type: none"><li>• Personality and its measures</li><li>• Traits and their classification</li><li>• The concept of self</li><br/><li>• Psychoanalytic view of personality</li><li>• Developmental change and stability of personality</li><li>• Biological bases of Personality</li><li>• Sociocultural differences in Personality</li></ul>                                                                                                                 |                     |
| 3. Intellectual differences                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 17 hours            |
| <ul style="list-style-type: none"><li>• Intelligence and different ways of thinking about it</li><li>• History of Intelligence testing</li><li>• Current concepts and measures of intelligence</li><br/><li>• Theories of Intelligence: Spearman, Thurstone, Vernon, Guilford, Cattell, Gardner, Das</li><li>• Development of Intellect: Piaget and Vygotsky</li><li>• Issues and controversies in intelligence and its testing</li></ul>                                         |                     |
| Any two practicals related to the course                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1 credit (20 hours) |

**Suggested Reading**

Ashton, M.C. (2017). Individual Differences and Personality (3rd Edition). Academic Press.  
Gazzaniga, M., & Grison, S. (2018). Psychology in your life.(3<sup>rd</sup> edition). USA: W.W. Norton.  
Myers, D.G. & DeWall, C. N. (2017). Psychology (12<sup>th</sup> edition). USA: Worth.  
Schultz, D.P. & Schultz, S.E. (2016). Theories of Personality.(11th edition). Cengage Learning.  
Shirayev, E. (2016). Personality Theories: A Global View. USA: Sage.

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**MA Semester I**  
**Paper 4 Biopsychology**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

After completing this course, the student will be able to

- Understand the nature, methods, and ethical issues of research in biopsychology
- Understand the structure and functioning of the nervous system
- Analyse the extent and limits of the relationship between biological systems and behaviour

**Course content**

Theory for 5 credits (50 hours)

- |                                                                                                                                                                                                                                |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1. Introduction                                                                                                                                                                                                                | 10 hours |
| <ul style="list-style-type: none"><li>• Nature and scope of biopsychology</li><li>• Biological methods of study</li><li>• Behavioral methods of study</li><li>• Ethical issues in research in biopsychology</li></ul>          |          |
| 2. The Nervous system                                                                                                                                                                                                          | 10 hours |
| <ul style="list-style-type: none"><li>• Neurons and Supporting Cells</li><li>• Neural Conduction and Synaptic Transmission</li><li>• Classifications of the nervous system on the basis of structure and functioning</li></ul> |          |
| 3. Central Nervous System                                                                                                                                                                                                      | 10 hours |
| <ul style="list-style-type: none"><li>• Brain - Structure and functions</li><li>• Spinal Cord - Structure and functions</li><li>• Development of the brain</li><li>• Damage to the brain and its effects on behavior</li></ul> |          |
| 4. Sensations and perception                                                                                                                                                                                                   | 10 hours |
| <ul style="list-style-type: none"><li>• Vision</li><li>• Audition</li><li>• Skin senses</li><li>• Chemical senses</li></ul>                                                                                                    |          |
| 5. The motor system                                                                                                                                                                                                            | 10 Hours |
| <ul style="list-style-type: none"><li>• Principles of sensory motor function</li><li>• Sensory motor association cortex</li><li>• Effectors: Muscles and Glands</li></ul>                                                      |          |

Any two practicals related to the course

1 credit (20 hours)

**Suggested reading**

**Gazzaniga, M & Grison, S.** (2018). *Psychology in your life.*(3<sup>rd</sup> edition). USA: W.W. Norton.

**Goldstein, E.B. & Brockmole, J.R.** (2016). *Sensation and Perception* (10<sup>th</sup> edition). USA: Cengage.

**Kalat, J.W.** (2018). *Biological Psychology* (13<sup>th</sup> edition). USA: Cengage Learning

**Pinel, J.P.J. & Barnes, S.** (2017). *Biopsychology* (10<sup>th</sup> edition). USA: Pearson.

  
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**MA Semester II**  
**Paper 1 Systems of Psychology**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

This course will enable students with

1. Foundational knowledge regarding the history and evolution of psychology
2. Critical appreciation of the theories of famous psychologists
3. An overview of the different systems of thought in Psychology, so that they can develop an efficient framework to synthesise their knowledge in Psychology.

**Course Content**

Theory for 5 credits (50 hours)

- |                                                                                 |         |
|---------------------------------------------------------------------------------|---------|
| 1. Associationism – The philosophers, Ebbinghaus, Thorndike, Pavlov, Guthrie    | 6 hours |
| 2. Structuralism – Weber, Fechner, Wundt, Titchener                             | 5 hours |
| 3. Functionalism – James, Dewey, Angell, Carr, Woodworth                        | 5 hours |
| 4. Gestalt – Wertheimer, Kohler, Koffka, Lewin                                  | 5 hours |
| 5. Behaviorism – Watson, Skinner, Hull, Spence, Miller and Dollard              | 7 hours |
| 6. Cognitive Behaviorism – Tolman, Bandura                                      | 5 hours |
| 7. Psychoanalysis – Freud, Adler, Jung                                          | 5 hours |
| 8. Neo Psychoanalysis – Erikson, Horney, Sullivan, Klein, Mahler                | 6 hours |
| 9. Humanistic Existential – Maslow, Rogers, Goldstein, Existential philosophers | 6 hours |

Any two practicals related to the course

1 credit (20 hours)

**Suggested Reading**

Brennan J.F. (2014), *Readings in the history and systems of psychology* (2<sup>nd</sup> edition). USA: Pearson.

Brennan J.F. & Houde K.A. (2017). *History and systems of psychology* (7<sup>th</sup> edition). UK: Cambridge University Press.

Hergenhahn B.R. (2019), *Introduction to the history of psychology* (8<sup>th</sup> edition), USA: Cengage.

Schultz, D.P. & Schultz, S.E. (2016). *A history of modern psychology*. (11<sup>th</sup> edition). Cengage Learning.



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**MA Semester II**  
**Paper 2 Social Psychology**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

The completion of this course will enable students:

1. To understand individuals in the context of society, social phenomena, and processes
2. To evaluate the role of perception, cognition, and emotions, in social behaviour
3. To synthesize knowledge about attitudes, interpersonal attraction, and prosocial behaviour

**Course content**

Theory for 5 credits (50 hours)

- |                                                                                                                                                                                                                                                                                                                   |          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1. Introduction to Social Psychology                                                                                                                                                                                                                                                                              | 8 hours  |
| <ul style="list-style-type: none"><li>• Social Psychology – A brief history</li><li>• Scope of Social Psychology</li><li>• Research methods in Social Psychology</li><li>• Ethics in Social psychology</li></ul>                                                                                                  |          |
| 2. Social Cognition                                                                                                                                                                                                                                                                                               | 8 hours  |
| <ul style="list-style-type: none"><li>• The impact of schemas on social cognition: Attention, Encoding, Retrieval</li><li>• Heuristic and Automatic Processing: Ways of reducing our effort in social cognition</li><li>• Potential sources of error in social cognition</li><li>• Affect and Cognition</li></ul> |          |
| 3. Social perception and attribution                                                                                                                                                                                                                                                                              | 8 hours  |
| <ul style="list-style-type: none"><li>• Role of Nonverbal Cues in Social perception</li><li>• Theories of attribution</li><li>• Errors in attribution</li></ul>                                                                                                                                                   |          |
| 4. Attitudes and Attitude Change                                                                                                                                                                                                                                                                                  | 10 hours |
| <ul style="list-style-type: none"><li>• Meaning and characteristics of attitudes</li><li>• Attitude formation</li><li>• Measurement of attitudes</li><li>• Determinants of attitude change</li><li>• Theories of attitude change</li></ul>                                                                        |          |
| 5. Interpersonal Attraction                                                                                                                                                                                                                                                                                       | 8 hours  |
| <ul style="list-style-type: none"><li>• Meaning</li><li>• Determinants</li><li>• Theories</li></ul>                                                                                                                                                                                                               |          |
| 6. Pro social behaviour                                                                                                                                                                                                                                                                                           | 8 hours  |
| <ul style="list-style-type: none"><li>• Meaning</li><li>• Factors in pro social behaviour</li><li>• Theories of pro social behaviour</li></ul>                                                                                                                                                                    |          |

**Any two practicals** related to the course

1 credit (20 hours)

**Suggested reading**

- Branscombe, N.R., & Barpn, R.A. (2017). Social Psychology (14<sup>th</sup> edition). USA: Pearson
- Dalal, A.K. & Misra, G. (2001). (Eds.). Social Psychology. (Series: New Directions in Indian Psychology, Vol. 1). New Delhi: Sage.
- Kassin, S., Fein, S., & Markus, H.R. (2016). Social Psychology. (10th edition). USA: Cengage.
- Singh, A.K. (2015). Social Psychology. India: Prentice Hall of India.



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**MA Semester II**  
**Paper 3 Cognitive Psychology**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

After course completion, the student will

1. Understand and appreciate the cognitive aspect of human behaviour
2. Explore and use the methods of cognitive psychology
3. Analyse and synthesise the impact of the cognitive viewpoint in Psychology


**Course content**

Theory for 5 credits (50 hours)

- |                                          |                                                                                                                                                                                                                                                                                                                                                                  |                     |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1. Cognitive Psychology                  |                                                                                                                                                                                                                                                                                                                                                                  | 10 hours            |
|                                          | <ul style="list-style-type: none"><li>• Psychology as a science of mind, abandoning 'mind' and resurgence of the study of mind</li><li>• Philosophical, psychological, biological, computational, and evolutionary approaches to cognition</li><li>• The methods of cognitive psychology</li><li>• The scope of cognitive psychology</li></ul>                   |                     |
| 2. Perception                            |                                                                                                                                                                                                                                                                                                                                                                  | 15 hours            |
|                                          | <ul style="list-style-type: none"><li>• Perception of Form</li><li>• Perception of Depth</li><li>• Perception of Movement</li><li>• Object perception</li><li>• Pattern recognition</li><li>• Perception of the real world: Objects, Faces, Scenes</li><li>• Perception-action interface</li></ul>                                                               |                     |
| 3. Attention                             |                                                                                                                                                                                                                                                                                                                                                                  | 10 hours            |
|                                          | <ul style="list-style-type: none"><li>• Attention, awareness, and consciousness</li><li>• Attention as a bottleneck and filter in information processing</li><li>• Directing attention</li><li>• Dividing attention</li><li>• When we do not attend</li><li>• Outcomes of attention</li></ul>                                                                    |                     |
| 4. Memory                                |                                                                                                                                                                                                                                                                                                                                                                  | 15 hours            |
|                                          | <ul style="list-style-type: none"><li>• Stages: Encoding, Storage, Retrieval</li><li>• Stores: Sensory, Short term, and Long term stores</li><li>• Models of memory: The modal model, Working memory, Levels of Processing</li><li>• Types: Episodic, Semantic, and Procedural Memory</li><li>• Measures of memory</li><li>• Forgetting and its causes</li></ul> |                     |
| Any two practicals related to the course |                                                                                                                                                                                                                                                                                                                                                                  | 1 credit (20 hours) |

**Suggested reading**

- Eysenck, M.W. & Keane, M.T. (2015). Cognitive Psychology: A Student's Handbook (7<sup>th</sup> Edition). UK: Psychology Press.
- Gazzaniga, M.S., Ivry, R.B., & Mangun, G.R. (2018). Cognitive Neuroscience: The biology of the mind. (5<sup>th</sup> Edition). New York: W.W. Norton.
- Goldstein, E. B. (2018). Cognitive Psychology: Connecting Mind, Research, and Everyday Experience (5<sup>th</sup> edition). USA: Cengage.
- Groome, D. & Eysenck, M. (2016): An Introduction to Applied Cognitive Psychology 2nd Edition. UK: Psychology Press.
- Sternberg, R.J., & Sternberg, K. (2016) Cognitive Psychology (7<sup>th</sup> Edition). USA: Wadsworth Publishing.

  
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**MA Semester II**  
**Paper 4 Inferential Statistics in Psychology**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

After completing this course, students will be able to analyze and interpret data in Psychology. Specifically:

1. They would make informed choices regarding techniques required to analyze particular data sets
2. They would apply relevant statistical methods to analyze particular data sets
3. They would interpret results and arrive at correct conclusions from particular data sets

**Course content**

Theory for 5 credits (50 hours)

- |                                                                                                                                                                                                                                                                                                          |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1. Inferential statistics                                                                                                                                                                                                                                                                                | 10 hours |
| <ul style="list-style-type: none"><li>• Difference from Descriptive statistics</li><li>• Statistical Hypothesis Testing</li><li>• Effect Size</li><li>• Statistical Power</li></ul>                                                                                                                      |          |
| 2. One way ANOVA                                                                                                                                                                                                                                                                                         | 10 hours |
| <ul style="list-style-type: none"><li>• In independent samples</li><li>• With repeated measures</li><li>• Planned comparisons</li><li>• Trend analyses</li><li>• Post hoc comparison of means – Protected t test</li></ul>                                                                               |          |
| 3. Two way ANOVA                                                                                                                                                                                                                                                                                         | 10 hours |
| <ul style="list-style-type: none"><li>• In independent samples</li><li>• With repeated measures</li><li>• In mixed factorial designs</li></ul>                                                                                                                                                           |          |
| 4. Non-parametric statistics                                                                                                                                                                                                                                                                             | 10 hours |
| <ul style="list-style-type: none"><li>• Difference from parametric statistics; Advantages and limitations</li><li>• Chi square</li><li>• Median test</li><li>• Mann Whitney U test</li><li>• Wilcoxon sign rank test</li><li>• Kruskal-Wallis one way ANOVA</li><li>• Friedman's two way ANOVA</li></ul> |          |
| 5. Correlations                                                                                                                                                                                                                                                                                          | 10 hours |
| <ul style="list-style-type: none"><li>• Rank difference</li><li>• Biserial</li><li>• Point biserial</li><li>• Tetrachoric correlation</li><li>• Phi coefficient</li></ul>                                                                                                                                |          |

Any two practicals related to the course.

1 credit (20 hours)

**Note:** Students will learn and practice all statistical techniques on datasets using calculators and/or statistical packages as appropriate.

**Suggested Reading**

- Agresti, A. (2017). Statistical methods for the Social Sciences (5<sup>th</sup> ed.). USA: Pearson.  
Howell, D.C. (2017). Fundamental statistics for the behavioural sciences (9<sup>th</sup> ed.). USA: Cengage  
Siegel, S. & Castellan, J.N. (1988). Nonparametric statistics for the behavioural sciences. (2<sup>nd</sup> ed.). USA: McGraw Hill.  
Utts, J.M. (2015). Seeing through statistics (4<sup>th</sup> ed.). USA: Cengage.  
Veeraraghavan, V. & Shetgovakar, S. (2016). Textbook of parametric and nonparametric statistics. India: Sage Texts.

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**MA Semester III**  
**Paper 1 Higher Cognitive Processes**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

After course completion, the student will be enabled to:

1. Understand and appreciate the complex cognitive processes in human behaviour
2. Understand the brain structures and processes underlying basic and complex cognitive behaviours
3. Analyse and evaluate the impact of the cognitive viewpoint in Psychology

**Course Content**

Theory for 5 credits (50 hours)

- |                                                                                                                                                                                                                                              |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1. The neuroscience of cognition                                                                                                                                                                                                             | 10 hours |
| <ul style="list-style-type: none"><li>• Levels of analysis</li><li>• Neural representation and cognition</li><li>• Localized vs. Distributed representation</li><li>• Neural networks</li></ul>                                              |          |
| 2. Conceptual knowledge                                                                                                                                                                                                                      | 10 hours |
| <ul style="list-style-type: none"><li>• Concepts and categories: The Prototype and Exemplar approaches</li><li>• Network models of categorization</li><li>• Representation of concepts in the brain</li></ul>                                |          |
| 3. Language                                                                                                                                                                                                                                  | 10 hours |
| <ul style="list-style-type: none"><li>• Linguistic relativity and linguistic universalism</li><li>• Understanding words</li><li>• Understanding sentences</li><li>• Understanding texts and stories</li><li>• Having conversations</li></ul> |          |
| 4. Problem Solving                                                                                                                                                                                                                           | 10 hours |
| <ul style="list-style-type: none"><li>• Gestalt approach</li><li>• Information processing approach</li><li>• Analogical Transfer</li><li>• Experts vs. Novices</li></ul>                                                                     |          |
| 5. Reasoning and Decision making                                                                                                                                                                                                             | 10 hours |
| <ul style="list-style-type: none"><li>• Inductive reasoning</li><li>• Deductive reasoning</li><li>• Decision making</li><li>• Creative thinking</li></ul>                                                                                    |          |

Two practicals related to the course

1 credit (20 hours)

**Suggested reading**

- Eysenck, M.W. & Keane, M.T. (2015). *Cognitive Psychology: A Student's Handbook* (7<sup>th</sup> Edition). UK: Psychology Press.
- Gazzaniga, M.S., Ivry, R.B., & Mangun, G.R. (2018). *Cognitive Neuroscience: The biology of the mind*. (Fifth Edition). New York: W.W. Norton.
- Goldstein, E. B. (2018). *Cognitive Psychology: Connecting Mind, Research, and Everyday Experience* (5<sup>th</sup> edition). USA: Cengage.
- Groome, D. & Eysenck, M. (2016): *An Introduction to Applied Cognitive Psychology* 2nd Edition. UK: Psychology Press.
- Sternberg, R.J., & Sternberg, K. (2016) *Cognitive Psychology* (7<sup>th</sup> Edition). USA: Wadsworth Publishing.

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**MA Semester III**  
**Paper 2 Advanced Quantitative Methods**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

After completing this course, students will be able to:

1. Make informed choices regarding advanced methods required to analyze particular data sets
2. Apply relevant advanced statistical methods to data sets
3. Interpret results and arrive at correct conclusions

**Course content**

Theory for 5 credits (50 hours)

1. Multiple and Partial correlations 10 hours
  - Concepts
  - Calculations in a three variable scenario
2. Prediction and Regression 15 hours
  - Concept of regression
  - Regression equation
  - Interpretation of regression coefficients
  - Linear Regression
  - Logistic Regression
  - Stepwise Regression
3. ANOVA in factorial designs 15 hours
  - Independent samples
  - Repeated measures
  - Mixed designs
  - Planned comparisons
  - Trend analyses
4. Factor Analyses 10 hours
  - Foundations of factor analyses
  - Extraction of factors
  - Rotation of factors
  - Second order factor analyses
  - Factor Scores

Any two practicals related to the course

1 credit (20 hours)

Note: Students will learn and practice all statistical techniques on datasets using calculators and/or statistical packages as appropriate.


**Suggested Reading**

Agresti, A. (2017). *Statistical methods for the Social Sciences* (5<sup>th</sup> edition). USA: Pearson.

Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5<sup>th</sup> edition). USA: Sage.

Howell, D.C. (2017). *Fundamental statistics for the behavioural sciences* (9<sup>th</sup> edition). USA: Cengage

Kerlinger, F.N. (1986). *Foundations of Behavioural Research* (3<sup>rd</sup> edition). USA: Holt, Rinehart & Winston

  
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**MA Semester III**  
**Paper 3 Psychopathology**

6 Credits = 5 for Theory + 1 for Practicals

**Learning Outcomes**

This course enables students to

1. Understand the concept of abnormality from various viewpoints
2. Critically evaluate different classification systems
3. Analyse the causes and understand the symptoms of different mental disorders

**Course content**

Theory for 5 credits (50 hours)

- |                                                                           |         |
|---------------------------------------------------------------------------|---------|
| 1. Concept of Abnormality, DSM V and ICD-11, Problems with classification | 5 hours |
| 2. Panic, Anxiety, Obsessions, and their disorders                        | 5 hours |
| 3. Mood disorders and Suicide                                             | 5 hours |
| 4. Somatic symptom disorders and dissociative disorders                   | 5 hours |
| 5. Eating disorders and obesity                                           | 5 hours |
| 6. Personality disorders                                                  | 5 hours |
| 7. Substance related disorders                                            | 5 hours |
| 8. Sexual variants, abuse, and dysfunctions                               | 5 hours |
| 9. Schizophrenia and other psychotic disorders                            | 5 hours |
| 10. Neurocognitive disorders                                              | 5 hours |

Any two practicals related to the course

1 credit (20 hours)

**Suggested reading**

American Psychiatric Association. (2013). Diagnostic and Statistical Manual of Mental Disorders, 5th Edition: DSM-5.


USA: American Psychiatric Association Publishing.

Hooley J.M., Butcher, J.N., Nock, M.K., & Mineka, S.M. (2017). Abnormal Psychology (17<sup>th</sup> edition). USA: Pearson.

Levy, K.N., Kelly, K.M., & Ray, W.J. (2018). Case Studies in Abnormal Psychology. USA: Sage

Nevid, J.S., Rathus, S.A., & Greene, B. (2017). Abnormal Psychology in a Changing World (10th Edition). USA: Pearson

World Health Organization (2019). International Classification of Diseases 11<sup>th</sup> revision. USA: World Health Organization.

  
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**MA Semester III**  
**Paper 4 Option 1 Clinical Psychology**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes:**

The aim is to initiate students in the discipline of Clinical Psychology. The course will enable students to:

1. Understand the growth and current status of clinical psychology as a discipline
2. Analyze the controversies and issues in Clinical Psychology
3. Acquire skills related to assessment and diagnoses of clinical conditions
4. Evaluate and understand the complexity in causation of clinical disorders
5. Understand the differential nature clinical disorders in children, adolescents, and adults

**Course Content**

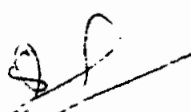
Theory for 5 credits (50 hours)

- |                                                                                                                                                                                                                                                                                              |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1. Introduction                                                                                                                                                                                                                                                                              | 10 hours |
| <ul style="list-style-type: none"><li>• Nature, assumptions, and scope of clinical psychology</li><li>• Evolution of Clinical Psychology</li><li>• Professional activities and employment settings</li><li>• Current Controversies</li><li>• Ethical issues in clinical psychology</li></ul> |          |
| 2. Assessment                                                                                                                                                                                                                                                                                | 10 hours |
| <ul style="list-style-type: none"><li>• Classification of mental disorders according to DSM-5 and ICD-11</li><li>• Clinical interview</li><li>• Intellectual and Neuropsychological assessment</li><li>• Personality assessment</li><li>• Behavioural assessment</li></ul>                   |          |
| 3. Causes of clinical conditions                                                                                                                                                                                                                                                             | 10 hours |
| <ul style="list-style-type: none"><li>• Biological causes</li><li>• Psychosocial causes</li><li>• Socio-cultural causes</li><li>• Models of complex causation</li></ul>                                                                                                                      |          |
| 4. Clinical Child and Adolescent Psychology                                                                                                                                                                                                                                                  | 10 hours |
| <ul style="list-style-type: none"><li>• Disorders of childhood</li><li>• Conduct Disorder</li><li>• Assessment of children and adolescents</li><li>• Resilience and vulnerability</li><li>• Psychotherapy with children and adolescents</li></ul>                                            |          |
| 5. Adult Clinical Psychology                                                                                                                                                                                                                                                                 | 10 hours |
| <ul style="list-style-type: none"><li>• Depression</li><li>• Anxiety disorders</li><li>• Health Anxiety and Somatization</li><li>• Post-traumatic stress</li><li>• Psychological problems of older people</li></ul>                                                                          |          |

Any two practicals related to the course 1 credit (20 hours)

**Suggested Reading**

- Carr, A. (2015). *The Handbook of Child and Adolescent Clinical Psychology: A Contextual Approach* (3<sup>rd</sup> edition). USA: Routledge.
- Carr, A. & McNulty, M. (Eds.). (2016). *The Handbook of Adult Clinical Psychology: An Evidence Based Practice Approach* (2<sup>nd</sup> edition). USA: Routledge.
- Lee, A., & Irwin, R. (2018). *Psychopathology: A Social Neuropsychological Perspective*. Cambridge: Cambridge University Press.
- Llewelyn, S., Aafjes-van Doorn, K. (2017). *Clinical Psychology: A Very Short Introduction*. Oxford, UK: Oxford University Press.
- Pomerantz, A.M. (2015). *Clinical psychology: Science, Practice, and Culture* (4<sup>th</sup> Edition). USA: Sage.
- Wood, A.M. & Johnson, J. (Eds.). (2016). *The Wiley Handbook of Positive Clinical Psychology*. UK: Wiley Blackwell.

  
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**MA Semester III**  
**Paper 4 Option 2 Human development till adulthood**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

After course completion, students will be enabled:

1. To evaluate theories and research regarding different stages of human development.
2. To analyse and synthesize knowledge about different domains of development across the life span.

**Course Content**

	Theory for 5 credits (50 hours)
1. Introduction	7 hours
• History of theorizing about human development	
• Research strategies in human development	
2. Foundations of development	7 hours
• Genetic and environmental foundations	
• Prenatal development	
• Birth and the new born baby	
3. Infancy and Toddlerhood (First two years)	6 hours
• Physical and Cognitive development	
• Emotional and social development	
4. Early childhood (2-6 years)	6 hours
• Physical and Cognitive development	
• Emotional and social development	
5. Middle childhood (6-11 years)	6 hours
• Physical and Cognitive development	
• Emotional and social development	
6. Adolescence	6 hours
• Physical and Cognitive development	
• Emotional and social development	
7. Early adulthood	6 hours
• Physical and Cognitive development	
• Emotional and social development	
8. Middle adulthood	6 hours
• Physical and Cognitive development	
• Emotional and social development	

Any two practicals to be performed on children 1 credit (20 hours)

**Suggested reading**

Berk, L.E. & Meyers, A.B. (2015) *Infants, Children, and Adolescents*. (8th edition). USA: Pearson.


Berger, K.S. (2017). *Developing Person Through the Life Span* (10th edition). USA: Worth.

Berk, L.E. (2017). *Development Through the Lifespan* (7th edition). USA: Pearson.

Feldman, R.S. (2017). *Discovering the Life Span* (4th edition). USA: Pearson.

Miller, P.H. (2016). *Theories of Developmental Psychology* (6th edition). USA: Worth.

Slater, A. and Bremner, J.G. (2017) *An Introduction to Developmental Psychology* (3rd edition). (BPS Textbooks in Psychology). UK: Wiley

  
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**MA Semester III**  
**Paper 4 Option 3 Organizational Psychology**

6 Credits = 5 for Theory + 1 for Practicals

**Learning outcomes**

The course aims to create an understanding of fundamental issues related to human behavior in the organizational setting. The students will:

1. Understand the nature and history of organizational psychology
2. Analyse personal attitudes and motivation toward work
3. Understand the principles and processes of recruitment, training, and management of employees

**Course Content**

Theory for 5 credits (50 hours)

- |                                              |          |
|----------------------------------------------|----------|
| 1. Introduction to Organizational Psychology | 10 hours |
| • History                                    |          |
| • Scope                                      |          |
| • Methods of research                        |          |
| • Organizational Psychology and Management   |          |
| 2. Attitudes toward work                     | 10 hours |
| • Job satisfaction                           |          |
| • Organizational Commitment                  |          |
| • Perceived organizational support           |          |
| • Psychological Empowerment                  |          |
| 3. Work motivation                           | 10 hours |
| • Need theories                              |          |
| • Goal setting                               |          |
| • Self determination and self efficacy       |          |
| • Expectancy theory                          |          |
| • Equity theory                              |          |
| 4. Human resource policies and practices     | 10 hours |
| • Recruitment                                |          |
| • Training and development                   |          |
| • Performance management                     |          |
| • Diversity and cross-cultural adjustments   |          |
| 5. Conflict and Negotiation                  | 10 hours |
| • The conflict process                       |          |
| • Negotiation process                        |          |
| • Negotiation strategies                     |          |
| • Factors affecting negotiation              |          |

Any two practicals related to the course to be conducted in an industrial/ organizational setting 1 credit (20 hours)

**Suggested reading**

- Dessler, G. (2016). Human resource management (15<sup>th</sup> edition, Global Edition). USA: Pearson
- Luthans, F., Luthans, B.C., Luthans, K.W. (2015). Organizational Behavior: An Evidence-Based Approach, 13th Edition. USA: Information Age.
- Robbins, S.P., & Judge T.A. (2018). Organizational Behavior, Student Value Edition (18th Edition). USA: Pearson.
- Scandura, T.A. (2018). Essentials of Organizational Behavior: An evidence based approach. USA: Sage.



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**MA Semester IV**  
**Paper 1 Psychometrics (Compulsory)**

6 Credits = 5 for Theory + 1 for Project

**Learning outcomes**

This course will enable students so that they:

1. Understand nature of psychological measurement in historical and contemporary contexts
2. Analyse and learn the steps in test construction
3. Acquire skills in computers and factor analyses to be used in test construction.

**Course content**

Theory for 5 credits (50 hours)

1. Psychological scaling 13 hours
  - Nature of psychological measurement, Psychophysics and methods of determining limens
  - Methods of scaling: Paired comparisons, Ranking, Equal-appearing intervals, Fractionation
  - Multidimensional scaling: Nature, methods, and applications
  - Modern psychophysics: Law of comparative judgment, Steven's power law, Signal detection theory
2. Psychological tests and measures 12 hours
  - Characteristics of a good psychological test
  - History and evolution of tests
  - Different types and classifications of tests
  - Uses of psychological tests
  - Ethical issues in the use of tests
3. Process of test construction 13 hours
  - Item writing, tryout, and analyses
  - Scores and their transformations
  - Reliability: Types, Factors affecting reliability
  - Validity: Types, Factors affecting validity
  - Putting together the test manual
4. Factor analyses and their use in test construction 12 hours
  - Basics of Factor analyses
  - Exploratory factor analyses
  - Confirmatory factor analyses

One project involving any two aspects of scale/ test construction

1 credit (20 hours)

**Note:** Students will learn and practice all statistical techniques on datasets using calculators and/or statistical packages as appropriate.

**Suggested reading**

- Furr, R.M., (2017). Psychometrics – An Introduction (3<sup>rd</sup> Edition). London: Sage.  
Gregory, R. J. (2017). Psychological Testing (7<sup>th</sup> Edition). USA: Pearson Education.  
DeVellis, R.F. (2016). Scale Development: Theory and Applications (4<sup>th</sup> edition). London: Sage.  
Price, L.R. (2016). Psychometric Methods: Theory into Practice. New York: Guilford Press.



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**MA Semester IV**  
**Option 1 Managing behaviour in organizations**

6 Credits = 5 for Theory + 1 for Project

**Learning outcomes**

Course completion will enable students to:

1. Understand and evaluate different types of organizational structure
2. Critically analyse and evaluate the different theories regarding leadership
3. Analyse the role of leaders in organizational culture, motivating employees, organizational change

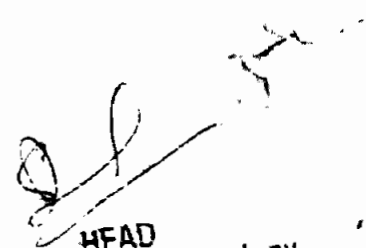
**Course content**

	Theory for 5 credits (50 hours)
1. Organization structure	8 hours
• Characteristics of organizational structure	
• Types of structure	
• Factors affecting organizational structure	
2. Organizational culture	8 hours
• Defining and describing organizational culture	
• Functions of organizational culture	
• Creating and sustaining organizational culture	
3. Motivating employees	8 hours
• Motivating by job design and alternative work arrangements	
• Using Rewards and benefits	
• Enhancing intrinsic motivation	
• Creating effective teams	
4. Leadership – Classic approaches	9 hours
• Trait theories	
• Behavioral theories	
• Contingency theories	
• Path goal theory	
5. Leadership – Contemporary approaches	9 hours
• Leader member exchange	
• Transactional vs. Transformational leaders	
• Charismatic leadership	
• Authentic and Ethical Leadership vs. Toxic leadership	
• Challenges to understanding leadership	
6. Organisational change	8 hours
• Nature and process of change	
• Strategic Planning	
• Managing change	

One project related to the course to be conducted in an industrial/ organizational setting      1 credit (20 hours)

**Suggested reading**

- Luthans, F., Luthans, B.C., & Luthans, K.W. (2015). Organizational Behavior: An Evidence-Based Approach, 13th Edition. USA: Information Age.
- Robbins, S.P., & Judge T.A. (2018). Organizational Behavior, Student Value Edition (18th Edition). USA: Pearson.
- Scandura, T.A. (2018). Essentials of Organizational Behavior: An evidence based approach. USA: Sage.
- Storey, J. (Ed.).(2017). Leadership in Organizations (3rd Edition). New York: Routledge.

  
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**M.A. Semester -IV**  
**Option 2 Forensic and Criminal Psychology**

6 Credits = 5 for Theory + 1 for Project

**Learning outcomes**

The course aims at introducing students to Forensic and Criminal Psychology. Students will:

1. Understand the history and current status of forensic and criminal psychology
2. Analyze the factors in criminal behaviour
3. Gain knowledge about the methods of investigation used in forensic and criminal psychology
4. Evaluate the research in different areas of forensic and criminal psychology

**Course content**

Theory for 5 credits (50 hours)


- |                                                            |         |
|------------------------------------------------------------|---------|
| 1. Introduction to forensic and criminal psychology        | 6 hours |
| • History of forensic and criminal psychology              |         |
| • Roles and Responsibilities of psychologists in this area |         |
| • Methods of research                                      |         |
| • Ethical issues                                           |         |
| 2. Biological factors in criminal behaviour                | 6 hours |
| • Heredity                                                 |         |
| • Brain structure                                          |         |
| • Neurotransmitters                                        |         |
| • Addiction                                                |         |
| 3. Psychological factors in criminal behaviour             | 6 hours |
| • Intelligence                                             |         |
| • Psychoanalytical ideas                                   |         |
| • Personality                                              |         |
| • Psychopathy                                              |         |
| 4. Social factors in criminal behaviour                    | 6 hours |
| • Social learning                                          |         |
| • Social construction                                      |         |
| • Humanistic approach                                      |         |
| • Existential thought                                      |         |
| 5. Eye witness Testimony                                   | 7 hours |
| • Eye witness testimony as a central issue in law          |         |
| • Importance of eye witness evidence research              |         |
| • Accuracy of witness evidence                             |         |
| • Improving the validity of the line up                    |         |
| • Facial composites, age progression and identification    |         |
| 6. Investigative psychology                                | 7 hours |
| • Police investigation and the cognitive interview         |         |
| • Forensic hypnosis                                        |         |
| • Detecting Deception                                      |         |
| • Portrait Parle                                           |         |
| • Analysis of modus operandi                               |         |
| 7. Profiling                                               | 6 hours |
| • Criminal profiling                                       |         |
| • Geographical profiling                                   |         |
| • Consistency in offending                                 |         |
| • Crime linkage                                            |         |
| • Profiling and personality                                |         |
| 8. Terrorism                                               | 6 hours |
| • The nature of terrorism                                  |         |
| • Causes of terrorism                                      |         |
| • Types of terrorists                                      |         |
| • Profiling terrorists and terrorist organizations         |         |

One project related to the course

1 credit (20 hours)

**Suggested Reading**

Crighton, D.A. & Towl, G.J. (2015). *Forensic Psychology (2nd Edition)*. John Wiley & Sons.  
Davies, G.M. & Beech, A.R. (2018). *Forensic Psychology: Crime, Justice, Law, Interventions (3rd Edition)*. UK: Wiley  
Gavin, H. (2018). *Criminological and Forensic Psychology (2nd Edition)*. USA: Sage Publications  
Howitt, D. (2018). *Introduction to Forensic and Criminal Psychology (6th Edition)*. UK: Pearson Education.

  
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**M. A. IV Semester**  
**Option 3 Health Psychology**

6 Credits = 5 for Theory + 1 for Project


- Learning outcomes** This course introduces the students to health psychology. Students will:
1. Understand the history, fundamentals, and current issues in health psychology
  2. Understand the functioning of various systems of the body in maintaining physical health
  3. To learn about health related behaviours and resources to promote wellbeing and health

<b>Course content:</b>	Theory for 5 credits (50 hours)
1. Introduction to Health Psychology	8 hours
• Nature, History, and Scope of Health Psychology	
• Bio-medical and Bio-psychosocial models	
• Health psychology in relation to other disciplines	
• Issues and controversies in Health Psychology	
2. Systems in the body	12 hours
• The Nervous System	
• The Endocrine System	
• The Digestive System	
• The Respiratory System	
• The Cardiovascular System	
• The Immune System	
3. Psycho-biological causes of health and illness	10 hours
• Heredity	
• Psychoneuroimmunology	
• Risky health behaviours	
• Cognitions	
• Motivation and emotions	
• Personality	
4. Understanding and managing health problems	10 hours
• Chronic illnesses - Diabetes, Hypertension	
• Acute health problems – Heart attack, Stroke	
• Addictions - Tobacco, alcohol, and other drugs	
5. Promoting healthy behaviours and wellbeing	10 hours
• Positive Psychology and Health	
• Indian philosophy and practices in relation to health	
• Primary, secondary, and tertiary prevention	

**One project related to the course** 1 credit (20 hours)

**Suggested reading**

- DiMatteo, M.R. & Leslie, R.M. (2017). Health psychology. India: Pearson Education.
- Marks, D.F., Murray, M. and Estacio, E.V. (2018). Health Psychology: Understanding the Mind-Body Connection (5<sup>th</sup> Edition). USA: Sage .
- Ragin, D.F. (2017). Health Psychology: An Interdisciplinary Approach (3<sup>rd</sup> Edition). USA: Routledge
- Sanderson, C. A. (2018). Health Psychology (3<sup>rd</sup> Edition). USA: Sage
- Sarafino, E.P. & Smith, T.W. (2017). Health psychology: Biopsychosocial interactions (9th ed.). USA: Wiley.
- Straub, R.O. (2019). Health psychology: A biopsychosocial approach (6th ed.). UK: Worth Publishers
- Taylor, S.E. (2017). Health psychology. (10th ed.). New York, NY: McGraw-Hill Education.

  
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**MA Semester IV**  
**Option 4 Counseling Psychology**

6 Credits = 5 for Theory + 1 for Project

**Learning Objectives:**

The course introduced students Counseling Psychology. The students will:

1. Understand the nature of counseling
2. Understand the assessment of client problems
3. Analyze the skills and processes required for counseling
4. Understand the ethical principles in the practice of counseling

**Course content**

Theory for 5 credits (50 hours)

1. Conceptualizing Counseling 9 hours
  - What Is Counseling?
  - The Parameters of Counseling
  - Characteristics of Effective Helpers
  - The Developmental Nature of Learning to Counsel
  - Stages of counselling
2. Skills of Counseling 8 hours
  - Communication in Counseling
  - Non-verbal Skills of Counseling
  - Basic Verbal Skills of Counseling
  - Advanced Verbal Skills of Counseling
  - Ethics of counseling
3. Building a Relationship 8 hours
  - Characteristics of the Real Relationship
  - Communicating Empathy
  - Conditions That Convey Genuineness
  - Conditions That Convey Positive Regard
4. Assessing Client Problems 8 hours
  - Purposes of Assessment
  - Components of Assessment
  - Using Assessment Information
5. Developing Counseling Goals 8 hours
  - Functions of Counseling Goals
  - Parameters of Goal-Setting: Process and Outcome Goals
  - Three Elements of Good Outcome Goals
  - Client Participation and resistance in Goal-Setting
6. Defining Strategies and Selecting Interventions 9 hours
  - Conceptualizing the case
  - Diagnosis
  - Time Orientation, Goals, and Treatment Planning
  - Strategy Selection
  - Categories of Counseling Interventions

One project related to the course

1 credit (20 hours)

**Suggested Reading**

- Capuzzi, D. & Gross, D.R. (Eds.). (2017). Introduction to the Counseling Profession (7th Edition). UK: Routledge.
- Corey, G. (2016). Theory and Practice of Counseling and Psychotherapy. USA: Cengage.
- Corey, M.S. and Corey, G. (2015). Becoming a Helper (7th Edition). USA: Cengage.
- Erford, B.T. (2014). 40 Techniques Every Counselor Should Know (2nd Edition). USA: Pearson.
- Hackney, H.L. & Bernard, J.M. (2016). Professional Counseling: A Process Guide to Helping (8th Edition). USA: Pearson.
- Reeves, A. (2018). An Introduction to Counselling and Psychotherapy: From Theory to Practice. (2<sup>nd</sup> edition). UK: Sage.



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MA Semester IV

Option 5 The Psychology of Aging

6 Credits = 5 for Theory + 1 for Project

Learning outcomes

This course introduces students to current theorizing and research in Aging. It will enable students to:

1. Understand the theoretical and historical context of aging research
2. Analyse the biological factors in aging
3. Evaluate the psychological and socio-cultural aspects of aging

Course content

Theory for 5 credits (50 hours)

1. The study of aging populations 10 hours
  - Defining Older Adults
  - History of the Psychology of Aging
  - Aging in the context of lifespan theories
2. Biological underpinnings 10 hours
  - Biological theories of Aging
  - Changes to the brain
  - Age related health conditions
3. Psychological aspects of aging 10 hours
  - Cognitive preservation and decline
  - Personality development
  - Emotional functioning
  - Mental health
4. Socio-cultural aspects 10 hours
  - Changing roles in the family
  - Retirement from work
  - Cultural differences in aging
5. Death and dying 10 hours
  - Attitudes towards death
  - Palliative and Hospice Care
  - Bereavement

One project to be conducted with the aged population

1 credit (20 hours)

Suggested reading

Berk, L.E. (2017). Development through the lifespan (7th edition). USA: Pearson.

Cavanaugh, J.C. & Blanchard-Fields, F. (Author) (2018). Adult Development and Aging (8th Edition). USA: Cengage Learning.

Gutchess, A. (2019). Cognitive and Social Neuroscience of Aging (Cambridge Fundamentals of Neuroscience in Psychology). Cambridge: Cambridge University Press

Schaie, K.W. & Sherry Willis (Eds.).(2016). Handbook of the Psychology of Aging (8th Edition). USA: Academic Press.

Yochim, B.P. (Ed.). (2017). Psychology of Aging: A biopsychosocial perspective. New York: Springer.

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**MA Semester IV**  
**Option 6: Educational Psychology**

6 Credits = 5 for Theory + 1 for Project

**Learning outcomes**

The course explores the psychological principles and factors underlying the teaching-learning process. Students will:

1. Understand the psychology of and individual differences among teachers and learners
2. Analyse the psychological principles and processes in the teaching learning process

**Course content**

Theory for 5 credits (50 hours)


- |                                                                         |         |
|-------------------------------------------------------------------------|---------|
| 1. The teacher                                                          | 8 hours |
| • Two types of teacher expectation effects                              |         |
| • How expectations become self-fulfilling                               |         |
| • How teachers form expectations                                        |         |
| • How teachers communicate expectations to students                     |         |
| • Students' perceptions of differential teacher treatment               |         |
| 2. Motivating students                                                  | 8 hours |
| • Essential preconditions for successful use of motivational strategies |         |
| • Motivating by maintaining success expectations                        |         |
| • Inducing students to value learning activities                        |         |
| • Strategies for supplying extrinsic motivation                         |         |
| • Strategies capitalizing on students' intrinsic motivation             |         |
| • Strategies for stimulating student motivation to learn                |         |
| 3. The learner                                                          | 9 hours |
| • Gender differences                                                    |         |
| • Learning style differences                                            |         |
| • Accommodating students' personal characteristics                      |         |
| • Computer and mobile use in the classroom                              |         |
| • Gifted, retarded, learning disabled students and their training       |         |
| 4. Active teaching                                                      | 9 hours |
| • Instructional methods as means to accomplish curricular goals         |         |
| • Research relating teacher behavior to student learning                |         |
| • Presenting information to students                                    |         |
| • Developing understandings through interactive discourse               |         |
| • Structuring and scaffolding activities and assignments                |         |
| 5. Helping students to construct usable knowledge                       | 8 hours |
| • Social constructivist views of learning and teaching                  |         |
| • Socio-cultural views of learning and teaching                         |         |
| • Subject-specific variations on basic instructional models             |         |
| • Constructivist teaching: Appealing but difficult                      |         |
| 6. Assessing students' learning                                         | 8 hours |
| • Essay test items                                                      |         |
| • Objective test items                                                  |         |
| • Using rating scales                                                   |         |
| • Portfolios                                                            |         |

One project to be conducted in the school setting

1 credit (20 hours)

**Suggested Reading**

- Good, T.L. & Lavigne, A.L. (Eds.). (2017). Looking in Classrooms (11th Edition). USA: Routledge.
- Slavin, R.E. (2018). Educational Psychology – Theory and Practice (12<sup>th</sup> edition). USA: Pearson.
- Wimberley, A. (2016). Reshaping the paradigms of teaching and learning. USA: Rowman and Littlefield.
- Woolfolk, A. (2018). Educational Psychology. (18<sup>th</sup> edition). USA: Pearson.
- Woolfolk, A., Misra, G., & Jha, A. (2012). Fundamentals of Educational Psychology (11<sup>th</sup> edition). India: Pearson Education.

  
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MA Semester IV

Option 7 Techniques of Counselling and Psychotherapy

6 Credits = 5 for Theory + 1 for Project

Learning outcomes

Upon successful completion of the course, the students should be able to

1. Comprehend different counselling and psychotherapeutic techniques
2. Select appropriate techniques on the basis of the presenting case and symptoms

Course content

Theory for 5 credits (50 hours)


- |                                                              |         |
|--------------------------------------------------------------|---------|
| 1. Freud's psychoanalytic approach                           | 4 hours |
| 2. Jung's approach to therapy                                | 4 hours |
| 3. Object relations therapy                                  | 4 hours |
| 4. Ego Psychology                                            | 4 hours |
| 5. Adlerian psychotherapy                                    | 4 hours |
| 6. Existential therapy                                       | 4 hours |
| 7. Person-centered therapy (Rogers)                          | 4 hours |
| 8. Gestalt therapy                                           | 4 hours |
| 9. Behavioral therapy                                        | 4 hours |
| 10. Cognitive Behavioural therapy – Ellis, Beck, Meichenbaum | 6 hours |
| 11. Reality therapy                                          | 4 hours |
| 12. Ectetic approach to counselling and therapy              | 4 hours |

One project related to the course

1 credit (20 hours)

Suggested Reading

- Corey, G. (2016). *Theory and Practice of Counseling and Psychotherapy*. USA: Cengage.
- Corey, M.S. & Corey, G. (2015). *Becoming a Helper (7th Edition)*. USA: Cengage.
- Erford, B.T. (2014). *40 Techniques Every Counselor Should Know (2nd Edition)*. USA: Pearson.
- Hackney, H.L. & Bernard, J.M. (2016). *Professional Counseling: A Process Guide to Helping (8th Edition)*. USA: Pearson.
- Reeves, A. (2018). *An Introduction to Counselling and Psychotherapy: From Theory to Practice. (2nd edition)*. UK: Sage.

  
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**M. A. IV Semester**  
**Option 8 Psychology for National Development**

6 Credits = 5 for Theory + 1 for Project

**Learning outcomes**

This course inspires students to apply their knowledge of psychology to issues and problems of national importance. The students will

- Understand the psychological underpinnings and manifestations of problems in the Indian society
- Use their knowledge and skills to plan strategies for managing and reducing social problems

**Course content**

Theory for 5 credits (50 hours)

- |                                                                                                                                                                                                                                                                                                                                                        |         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1. Psychology of Gender                                                                                                                                                                                                                                                                                                                                | 9 hours |
| <ul style="list-style-type: none"><li>• Gender stereotypes and discrimination</li><li>• Violence against women</li><li>• Management of diversity in the workplace</li><li>• Gender sensitization programs</li></ul>                                                                                                                                    |         |
| 2. Applying Psychology to disadvantaged groups                                                                                                                                                                                                                                                                                                         | 9 hours |
| <ul style="list-style-type: none"><li>• The concepts of disadvantage and deprivation</li><li>• Consequences of relative and prolonged deprivation</li><li>• Social, physical, cultural, and economic consequences of disadvantage and deprivation</li><li>• Educating and motivating the disadvantaged towards development</li></ul>                   |         |
| 3. Psychological problems of social integration                                                                                                                                                                                                                                                                                                        | 8 hours |
| <ul style="list-style-type: none"><li>• The concept of social integration</li><li>• The problem of caste, class, religion, and language conflicts</li><li>• Psychological factors in manifestation of prejudice and social conflicts</li><li>• Strategies for handling discrimination</li><li>• Measures to achieve social integration</li></ul>       |         |
| 4. Psychology and economic development                                                                                                                                                                                                                                                                                                                 | 8 hours |
| <ul style="list-style-type: none"><li>• Achievement motivation and economic development</li><li>• Characteristics of entrepreneurial behavior</li><li>• Motivating and training people for entrepreneurship and economic development</li><li>• Government policies for promotion of entrepreneurship</li><li>• Consumer awareness and rights</li></ul> |         |
| 5. Psychology and Information Technology                                                                                                                                                                                                                                                                                                               | 8 hours |
| <ul style="list-style-type: none"><li>• Psychological consequences of recent developments in Information Technology</li><li>• Distance learning through IT</li><li>• Entrepreneurship through e-commerce</li><li>• Fostering values through IT and mass media</li></ul>                                                                                |         |
| 6. Psychology for a sustainable future                                                                                                                                                                                                                                                                                                                 | 8 hours |
| <ul style="list-style-type: none"><li>• Psychological consequences of population explosion and high population density</li><li>• Motivating for small-family norm</li><li>• Degradation of environment</li><li>• Effects of noise, pollution, and crowding</li><li>• Change towards sustainable living and policies</li></ul>                          |         |

One project related to the course

1 credit (20 hours)

**Suggested reading**

- Sinha, D. (2015). Psychology for India. New Delhi: Sage India.
- Misra, G. (Ed.).(2011). Handbook of Psychology in India. New Delhi: Oxford University Press
- Pandey, J. (2004). Psychology in India Revisited - Developments in the Discipline, Vol. 3: Applied Social and Organizational Psychology. New Delhi: Sage India.

**M. A. IV Semester**  
**Option 9 Human Resource Development and Consulting**

6 Credits = 5 for Theory + 1 for Project

**Learning Outcomes**

This course focuses on strategies for assessing, designing, and implementing training and development efforts that positively impact the performance of the individual and the work group. Today these activities in organizations are often carried out by external consultants. Thus, this course also includes an overview of the consulting profession in organizations. Successful completion will enable students to:

1. Understand and appreciate the principles of the HRD field
2. Understand how to develop, implement, and evaluate effective training and development programs
3. Analyze the consequences and implications of HRD efforts in organizations
4. Efficiently utilize consulting principles and practices in organizations

**Course content**

Theory for 5 credits (50 hours)

- |                                                         |         |
|---------------------------------------------------------|---------|
| 1. Introduction to Human Resource Development           | 7 hours |
| • Evolution of the HRD area                             |         |
| • Relationship between Management and HRD               |         |
| • Roles and competencies of an HRD professional         |         |
| • Challenges to organizations and to HRD professionals. |         |
| 2. Psychological factors in HRD                         | 7 hours |
| • Characteristics of employees                          |         |
| • External and internal influences on behaviour         |         |
| • Cognition and HRD                                     |         |
| • Issues in assessment of behavior                      |         |
| 3. Assessing HRD Needs                                  | 7 hours |
| • Strategic/ Organizational Analysis                    |         |
| • Task analysis                                         |         |
| • Person analysis                                       |         |
| • Prioritizing HRD needs                                |         |
| 4. Designing Effective HRD Programs                     | 7 hours |
| • Defining the objectives of the HRD intervention       |         |
| • Selecting the trainer                                 |         |
| • Selecting training methods and media                  |         |
| • Preparing training materials                          |         |
| • Scheduling the HRD program                            |         |
| 5. Implementing HRD Programs                            | 8 hours |
| • Training delivery methods                             |         |
| • On-the-job training methods                           |         |
| • Off-the-job training methods                          |         |
| • Computer-based training                               |         |
| • Issues in program implementation                      |         |
| 6. Evaluating HRD Programs                              | 7 hours |
| • The purpose of HRD evaluation                         |         |
| • Models and frameworks of evaluation                   |         |
| • Research design and data collection for evaluation    |         |
| • Ethical issues concerning evaluation research         |         |
| • Assessing the financial impact of HRD programs        |         |
| 7. HR Consulting                                        | 7 hours |
| • Consultants: Types, skills, and values                |         |
| • Consulting as a Profession                            |         |
| • High-performance consulting firms                     |         |
| • Global consulting                                     |         |
| • Management Consulting in India.                       |         |

One project related to the course

1 credit (20 hours)

**Suggested Reading**

- Carbery, R., & Cross, C. (Eds.).(2015). Human resource development: A concise introduction. UK: Red Globe Press.  
Greiner, L.E., & Poulfelt F. (2010). Management consulting today and tomorrow. USA: Routledge.  
Rasiel E.M. (1999). The McKinsey way. USA: McGraw-Hill.  
Srivastava, U.K. & Srivastava, P (2012). Management consulting in India. India: Sage.  
Werner J. M. & DeSimone R. L. (2012). Human resource development (6th Edition). USA: Cengage Learning.

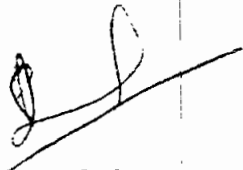
## M. Phil. Psychology (2019-2020)

<b>M Phil Psychology Semester I</b>		<b>Internal</b>	<b>External</b>	<b>Total</b>
Paper 1	Research Methods and Statistics	20 marks	80 marks	100 marks
Paper 2	Recent Trends in Psychology	20 marks	80 marks	100 marks

<b>M Phil Psychology Semester II</b>		<b>Internal</b>	<b>External</b>	<b>Total</b>
<u>* Student to take any TWO of the following options:</u>				
Option 1	Environmental Psychology	20 marks	80 marks	100 marks
Option 2	Health Psychology	20 marks	80 marks	100 marks
Option 3	Advanced Social Psychology	20 marks	80 marks	100 marks
Option 4	Neuropsychology	20 marks	80 marks	100 marks
Option 5	Clinical Assessment and Diagnoses	20 marks	80 marks	100 marks
Option 6	Social Cognitive Neuroscience	20 marks	80 marks	100 marks
Option 7	Memory	20 marks	80 marks	100 marks
Option 8	Human Resource Metrics and Analytics	20 marks	80 marks	100 marks
Option 9	Leadership and Decision Making in Organizations	20 marks	80 marks	100 marks

**Total 400 Marks**

A dissertation will also be submitted by the student which will be evaluated by a Board of examiners

  
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**M Phil Psychology Semester I**  
**Paper 1 Research Methods and Statistics**

60 hours

**Learning outcomes**

The course is designed to explore the different methods of research in Psychology and teach the essential concepts and techniques of statistics, which enable collection, analysis, and interpretation of data in psychological research.

After course completion:

1. Students would be able to select the appropriate method and samples for their research question.
2. They would make informed choices regarding techniques required to analyze particular data sets.
3. They would apply relevant statistical methods to analyze particular data sets.
4. They would interpret results and arrive at correct conclusions from particular data sets

**Course content**

1. Types of research: Quantitative research; Qualitative research; Mixed methods research (5 hours)
2. Problems and Hypotheses, Levels of significance; Errors in statistical decisions, Bayesian hypothesis testing (5 hours)
3. Methods of Psychology: Descriptive methods, Correlational methods, Experimental methods (5 hours)
4. Constructing the measures for research: Rating scales, Interview schedules, Questionnaires, Ability tests, Experimental tasks (5 hours)
5. Errors in measurement, Establishing the Reliability and Validity of Quantitative Measures, Validity of qualitative and mixed methods research (5 hours)
6. Regression analyses: Simple, linear, stepwise, and logistic regression methods, Regression equation and coefficients – calculation and interpretation (8 hours)
7. Assumptions of ANOVA and their tests, Links of ANOVA with the General Linear Model, t ratio, and multiple regression (5 hours)
8. ANOVA in factorial designs: Independent samples, repeated measures, and mixed designs (8 hours)
9. Planned and post hoc comparisons (Scheffe's, LSD, Newman Keuls, Duncan's, Tukey's), Trend analyses (8 hours)
10. Structural equation modelling: Basic principles, Relation with regression, ANOVA, and factor analyses, Implementing EFA and CFA and interpreting the output (6 hours)

Note: Students will learn and practice all statistical techniques on datasets using calculators and/or statistical packages as appropriate.

**Suggested reading**

- Agresti, A. (2017). *Statistical methods for the Social Sciences* (5<sup>th</sup> edition). USA: Pearson.
- DeCoster, J. (1998). *Overview of Factor Analysis*. Retrieved from <http://www.stat-help.com/notes.html>
- Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5<sup>th</sup> edition). USA: Sage.
- Howell, D.C. (2017). *Fundamental statistics for the behavioural sciences* (9<sup>th</sup> edition). USA: Cengage
- Kerlinger, F.N. (1986). *Foundations of Behavioural Research* (3<sup>rd</sup> edition). USA: Holt, Rinehart & Winston.
- Rouder, J. N., Morey, R. D., Verhagen, J., Swagman, A. R., & Wagenmakers, E.J. (2016). Bayesian Analysis of Factorial Designs. *Psychological Methods*. <http://dx.doi.org/10.1037/met0000057>
- Schonbrodt, F.D. & Wagenmakers, E.J. (2018). Bayes factor design analysis: Planning for compelling Evidence. *Psychonomic Bulletin and Review*, 25, 128–142.

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**M Phil Psychology Semester I**  
**Paper 2 Recent Trends in Psychology**

60 hours

**Learning Outcomes**

The course is designed to give an overview of recent trends in Psychology. The students will:


1. Evaluate biological, cognitive, and cultural factors in personality and behavior on the basis of research studies.
2. Analyse and evaluate empirical research in positive psychology
3. Assess and understand the role of IT and its impact on individuals and society

**Course content**

- |                                                              |          |
|--------------------------------------------------------------|----------|
| 1. Emphasis on biological bases of behavior                  | 12 hours |
| • Methods of assessing brain functioning                     |          |
| • The role of neurotransmitters in health                    |          |
| • Genetic factors in personality and behavior                |          |
| 2. Importance of cognition in behavior                       | 12 hours |
| • Cognitive factors in emotions and motivation               |          |
| • Cognitive factors in personality and psychopathology       |          |
| • Theory of mind and social behavior                         |          |
| 3. Globalization of behavior                                 | 12 hours |
| • Cultural universals                                        |          |
| • Cultural relativism                                        |          |
| • Multiculturalism                                           |          |
| 4. Positive Psychology                                       | 12 hours |
| • Lifestyle choices and health                               |          |
| • Happiness and well-being                                   |          |
| • Spirituality and religion                                  |          |
| 5. Psychology and Information Technology                     | 12 hours |
| • Using computers in assessment and testing                  |          |
| • Use of media – advantages and disadvantages to individuals |          |
| • Social change and media                                    |          |

**Suggested reading**

- Gazzaniga, M.S., Ivry, R.B., & Mangun, G.R. (2018). *Cognitive Neuroscience: The biology of the mind*. (5th Edition). New York: W.W. Norton.
- Groome, D. & Eysenck, M. (2016): *An Introduction to Applied Cognitive Psychology* (2nd Edition). UK: Psychology Press.
- Mayer, R.E. (2019). Computer Games in Education, *Annual Review of Psychology*, 70(1), 531-549.
- Pandey, J., Sinha, D., & Bhawal, D. P. S. (1996). *Asian contributions to cross-cultural psychology*. London, UK: Sage.
- Pressman, S.D., Jenkins, B.N. & Moskowitz, J.T. (2019). Positive Affect and Health: What Do We Know and Where Next Should We Go? *Annual Review of Review Psychology*, 70(1), 627-50.
- Shiraev, E., & Levy, D. (2013). *Cross-cultural psychology: Critical thinking and contemporary applications* (5th ed.). Boston: Allyn & Bacon.
- Smith, P. K., Fischer, R., Vignoles, V. L., & Bond, M. H. (2013). *Understanding social psychology across cultures: Engaging with others in a changing world* (2nd ed.). Thousand Oaks, CA: Sage.
- Webb, L.M. & Wright, K.B. (2010). *Computer-Mediated Communication in Personal Relationships*. New York: Peter Lang Publishing.

  
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Option 1 Environmental Psychology

60 hours

**Learning outcomes**

Environmental psychology focuses on the interplay between individuals and their surroundings. It examines the way in which the natural and built environments shape us as individuals, and in turn, how we influence our environments. Students will:

1. Understand the interdisciplinary nature and methods of Environmental Psychology
2. Evaluate the effects of environments on human welfare
3. Analyze the interplay between people and environments in environmental problems
4. Acquire skills to design and implement programs promoting pro-environment behaviour

**Course content**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Environmental psychology                             <ul style="list-style-type: none"> <li>• History</li> <li>• Scope</li> <li>• Methods</li> <li>• Future trends</li> </ul> </li> <li>2. Environmental influences on human behaviour and well-being                             <ul style="list-style-type: none"> <li>• Environmental stress</li> <li>• Urban environments</li> <li>• Restorative environments</li> <li>• Health benefits of nature</li> <li>• Environment and Quality of Life</li> </ul> </li> <li>3. Human influences on the environment                             <ul style="list-style-type: none"> <li>• Positive and negative influences; Sustainable living</li> <li>• Environmental degradation</li> <li>• Global warming</li> <li>• Loss of biodiversity</li> <li>• Ecological crisis and collapse</li> </ul> </li> <li>4. Factors influencing environmental behaviour                             <ul style="list-style-type: none"> <li>• Habits and environmental behaviour</li> <li>• Values and pro-environmental behaviour</li> <li>• Social norms and pro-environmental behaviour</li> <li>• Affective and symbolic aspects of environmental behaviour</li> <li>• Models to explain environmental behaviour</li> </ul> </li> <li>5. Encouraging pro environmental behaviour                             <ul style="list-style-type: none"> <li>• Environmental issues in developing countries</li> <li>• Informational strategies to promote pro-environmental behaviour</li> <li>• Encouraging pro-environmental behaviour with rewards and penalties</li> <li>• Persuasive appeals to promote pro-environmental behaviour</li> </ul> </li> </ol> | <p>12 hours</p> <p>12 hours</p> <p>12 hours</p> <p>12 hours</p> <p>12 hours</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|

**Suggested reading**

Abrahamse, W. (2019). Encouraging Pro-Environmental Behaviour: What Works, What Doesn't. USA: Academic Press.

Devlin, A.S. (2018). Environmental Psychology and Human Well-Being: Effects of Built and Natural Settings. Netherlands: Elsevier.

Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental values. *Annual Review of Environment and Resources*, 30, 335-372.

Dubash, N. K., Khosla, R., Kelkar, U., & Lele, S. (2018). India and climate change: Evolving ideas and increasing policy engagement. *Annual Review of Environment and Resources*, 43, 395-424.

Evans, G. W. (2019). Projected behavioral impacts of global climate change. *Annual Review of Psychology*, 70, 449-74.

Gifford, R. (2013). *Environmental Psychology – Principles and Practice* (5th ed.). New York: Optimal Books.

Gifford, R. (2014). Environmental psychology matters. *Annual Review of Psychology*, 65, 541-579.

Gifford, R. (Ed.). (2016). *Research Methods for Environmental Psychology*. UK: John Wiley and Sons.

Jenkins, W., Berry, E., & Kreider, L. B. (2018). Religion and Climate Change. *Annual Review of Environment and Resources*, 43, 85-108.

Newell, B. R., McDonald, R. I., Brewer, M., & Hayes, B. K. (2014). The psychology of environmental decisions. *Annual Review of Environment and Resources*, 39, 443-467.

Scott, B.A., Amel, E.L., Koger, S.M., & Manning, C.M. (2016). *Psychology for Sustainability*. (4th ed.). USA: Taylor and Francis.

Steg, L., & De Groot, J.L.M. (Eds.). (2018). *Environmental Psychology: An Introduction* (2nd ed., Kindle). USA: Wiley.



## M Phil Psychology Semester II

### Option 2 Health Psychology

60 hours

#### Learning outcomes

The course aims to promote theoretical knowledge and research in health psychology. The students will:

1. Understand the fundamentals, history, and future trends in health psychology
2. Evaluate the role of stress, lifestyles, and behavioural choices in health
3. Analyse and synthesise research regarding various health problems and their management
4. Acquire knowledge and skills to design and evaluate programs promoting health

#### Course content

1. Introduction to Health Psychology 10 hours
  - Nature, History, and Scope of Health Psychology
  - Models and current perspectives on health and illness
  - Research methods in health psychology
2. Stress and Health 10 hours
  - Nature and models of stress
  - Sources of stress
  - Measuring Stress
  - Coping and stress management
  - Social support
3. Life styles to enhance health and prevent illness 10 hours
  - Health related behaviour
  - Life styles
  - Risk factors
  - Interdisciplinary perspectives on preventing illness
  - Primary, secondary, and tertiary prevention
4. Pain and its management 10 hours
  - Theories of pain
  - Biopsychosocial aspects of pain
  - Assessing pain
  - Managing and controlling Clinical Pain
5. Health problems 12 hours
  - Chronic illnesses and their management
  - Heart disease
  - Stroke
  - Cancer
  - AIDS
6. Problems in promoting wellness 8 hours
  - Factors within the individual
  - Interpersonal factors
  - Factors in the community
  - Programs for health promotion

#### Suggested reading

- Cohen, S., Murphy, M. L., & Prather, A. A. (2019). Ten surprising facts about stressful life events and disease risk. *Annual Review of Psychology, 70*, 577-97.
- DiMatteo, M.R. & Leslie, R.M. (2017). Health psychology. India: Pearson Education.
- Holt-Lunstad, J. (2018). Why social relationships are important for physical health: a systems approach to understanding and modifying risk and protection. *Annual Review of Psychology, 69*, 437-458.
- Pressman, S. D., Jenkins, B. N., & Moskowitz, J. T. (2019). Positive Affect and Health: What Do We Know and Where Next Should We Go?. *Annual Review of Psychology, 70*, 627-50.
- Sarafino, E.P. & Smith, T.W. (2017). Health psychology: Biopsychosocial interactions (9th ed.). USA: Wiley.
- Sheridan, C.L. & Radmacher, S.A. (1997). Health psychology: Challenging the Biomedical Model. USA: John Wiley and Sons.
- Straub, R.O. (2019). Health psychology: A biopsychosocial approach (6th ed.). UK: Worth Publishers
- Taylor, S.E. (2017). Health psychology. (10th ed.). New York, NY: McGraw-Hill Education.
- Tomiyaama, A.J. (2019). Stress and obesity. *Annual Review of Psychology, 70*, 703-18.

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## M Phil Psychology Semester II

### Option 3 Advanced Social Psychology

60 hours

#### Learning Outcomes

This course is designed to promote advanced knowledge and research in Social Psychology. Students will:


1. Understand social behaviour, cognition, and aggression
2. Critically analyse research in conformity, group influence, conflict, and peace making
3. Analyze the role of social psychology in promoting values and behaviours for a sustainable future.

#### Course content

1. Research Methods in Social Psychology 08 hours
  - Observation
  - Correlational research
  - Experimental research
  - Problems of research and theorizing in the socio-cultural domain
2. Social Cognition 10 hours
  - The impact of schemas on social cognition: Attention, Encoding, Retrieval
  - Heuristic and Automatic Processing: Ways of reducing our effort in social cognition
  - Potential sources of error in social cognition
  - Affect and Cognition
3. Aggression 08 hours
  - Nature
  - Theories
  - Causes and correlates
  - Control
4. Conformity 08 hours
  - Nature
  - Factors affecting conformity
  - Ways to resist social pressure for conformity
5. Group Influence 10 hours
  - Individual vs. Performance in a group
  - Social Facilitation
  - Social Loafing
  - Deindividuation
  - Group Polarization
  - Groupthink
6. Conflict and Peacemaking 08 hours
  - Causes of Conflict
  - Conflict between individual and communal rights
  - Making the social connection
  - Methods for achieving peace
7. Social Psychology and a sustainable future 08 hours
  - Global Crisis
  - Psychology of materialism and wealth
  - Promoting a sustainable future

#### Suggested reading

- Branscombe, N.R., & Baron, R.A. (2017). Social Psychology (14<sup>th</sup> edition). USA: Pearson
- Dalal, A.K. & Misra, G. (2001). (Eds.). Social Psychology. New Delhi: Sage.
- Kassin, S., Fein, S., & Markus, H.R. (2016). Social Psychology (10<sup>th</sup> edition). USA: Cengage.
- Singh, A.K. (2015). Social Psychology. India: Prentice Hall of India.

  
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## M Phil Psychology Semester II

### Option 4 Neuropsychology

60 hours

#### Learning Outcomes

The course aims to give advanced knowledge regarding neuropsychology and various neuropsychological disorders. Students will:

1. Explore the nature of neuropsychology and its research methods
2. Understand the process of assessment and diagnoses
3. Explore various brain related disorders and techniques of rehabilitation

#### Course content

1. Introduction to Neuropsychology 15 hours
  - History, nature, and assumptions of neuropsychology
  - Methods of studying brain and behaviour
  - Ethical considerations in neuropsychology research
2. Assessment in Cognitive and Clinical Neuropsychology 15 hours
  - Neurological assessment
  - Neurological correlates of behavior.
  - Differential diagnoses approach
3. Brain related disorders 15 hours
  - Attention Deficit Hyperactivity Disorders
  - Autistic spectrum disorder
  - Intellectual disability syndrome
  - Traumatic brain injuries
  - Epilepsy and seizure disorder
4. Neuro-rehabilitation 15 hours
  - Interventions for functional impairments
  - Mindfulness based therapies
  - Empirically based rehabilitation of neurocognitive disorders
  - Classroom interventions

#### Suggested Reading

Adolphs, R. and Anderson, D.J. (2018). The Neuroscience of Emotion: A New Synthesis. USA: Princeton University Press.

Denes, G., Semenza, C. and Bisiacchi, P. (2018). Perspectives on Cognitive Neuropsychology. UK: Routledge.

Donders, J. and Hunter, S.J. (2018). Neuropsychological Conditions across the Lifespan. UK: Cambridge University Press.

Koffler, S., Mahone, E.M., Marcopulos, B.A., Johnson-Greene, D.E. and Smith, G. (2019). Neuropsychology: Science and Practice, Volume 3. Oxford: Oxford University Press

Morgan, J.E. and Ricker, J.H. (2018). Textbook of Clinical Neuropsychology. UK: Taylor & Francis.

Reed, J. and Warner-Rogers, J. (2017). Child Neuropsychology: Concepts, Theory, and Practice. USA: John Wiley & Sons.

Semrud-Clikeman, M. (2001). Traumatic Brain Injury in Children and Adolescents: Assessment and intervention. UK: Guilford Press.



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## M Phil Psychology Semester II

### Option 5 Clinical Assessment and Diagnoses

60 hours

#### Learning outcomes

Students who finish this course will gain:

- An understanding of the processes of assessment diagnoses and treatment planning.
- Knowledge about need based treatment, process, and significance.

#### Course content

1. Scientific understanding of clinical assessment 10 hours
  - Defining clinical assessment and its goals
  - History of assessment in clinical psychology
  - Reliability, validity and standardization
  - Errors in assessment
2. Process of psychological assessment 10 hours
  - Referral
  - Screening
  - Assessment and evaluation
  - Decision making
3. Methods of assessment 10 hours
  - Observation
  - Clinical Interview
  - Projective techniques
  - Non-projective/self-report
  - Neuropsychological assessment
4. Diagnoses of mental disorder 10 hours
  - Meaning of diagnoses and its goals
  - Diagnoses and Prognoses
  - Clinical diagnoses and classification
  - Differential diagnoses
  - Interview: Structured and semi-structured
  - Clinical Assessment of Abnormal Behaviour
5. Planning the treatment of mental disorders 10 hours
  - Planning Treatment
  - Treatment methods
  - Integrative and Eclectic approach
  - Evidence based treatment
6. Issues in assessment and diagnosis 10 hours
  - Ethical issues in assessment and diagnosis
  - Impact of race, ethnicity, and culture
  - Role of assessment in evidence based practice
  - Problem of Dual Diagnoses

#### Suggested Reading

- Antony, M. and Barlow, D.H. (2010). Handbook of Assessment and Treatment Planning for Psychological Disorders (2<sup>nd</sup> edition). UK: Guilford Press.
- Beidel, D.C. and Frueh, B.C. (2018). Adult Psychopathology and Diagnosis. USA: Wiley.
- Corey, G. (2016). Theory and Practice of Counselling and Psychotherapy. USA: Cengage.
- Haynes, S.N., Smith, G.T. and Hunsley, J.D. (2011). Scientific Foundations of Clinical Assessment. USA: Routledge.
- Hunsley, J. and Lee, C.M. (2018). Introduction to Clinical Psychology. USA: Wiley.



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## M Phil Psychology Semester II

### Option 6 Social Cognitive Neuroscience

60 hours

#### Learning outcomes

The aim is to study the current research in social cognitive neuroscience. Students will be able to:

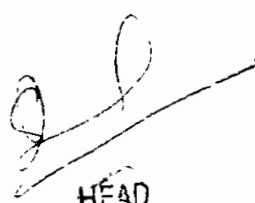
1. Understand the amalgamation of different viewpoints in social cognitive neuroscience
2. Apply their understanding of social cognitive neuroscience to enhance processes in real life
3. Design research studies on social cognition

#### Course content

1. Introduction 15 hours
  - Interdisciplinary nature of social cognitive neuroscience
  - Methods of social neuroscience
  - Evolutionary origins of social behavior
  - Emotion and motivation in the brain
2. Understanding others 15 hours
  - Social and emotional intelligence
  - Representing the minds of others
  - Experiencing the mental states of others
  - Problems with social understanding
3. Understanding oneself 15 hours
  - Recognizing oneself
  - Reflecting on the self
  - Intentional self-Regulation
  - Unintentional self-Regulation
4. Being in a social world 15 hours
  - Imitation, social learning, and mirror neurons
  - Social connection and social rejection
  - Attitudes and prejudices
  - Social decision-making and morality

#### Suggested reading

- Lieberman, M.D. (2013). *Social: Why our brains are wired to connect*. Oxford: Oxford University Press
- Schutt, R.K., Seidman, L.J., & Keshavan, M. (2015). *Social Neuroscience: Brain, Mind, and Society*. USA: Harvard University Press.
- Snyder, R.A. (2016). *The Social Cognitive Neuroscience of Leading Organizational Change*. USA: Taylor and Francis.
- Ward, J.T. (2017). *The students' guide to social neuroscience*. USA: Taylor and Francis.

  
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## M Phil Psychology Semester II

### Option 7 Memory

60 hours

#### Learning outcomes

The aim is to understand memory as an important research area with possible application in myriad facets of life. Students will be able to

1. Understand memory from theoretical as well as practical perspectives
2. Show a critical appreciation of classic as well as contemporary research studies in memory
3. Design experimental studies on memory
4. Apply their understanding of memory in diverse applied settings

#### Course content

1. Measurement of memory 12 hours
  - Implicit and explicit measures of memory
  - Tasks and materials used in memory research
  - Testing individual differences in memory
2. The history of research on memory 12 hours
  - Associationism
  - Behaviourism
  - Functionalism
  - Psychoanalysis
3. Cognitive studies and models of memory 12 hours
  - The multi store model
  - Working memory
  - Levels of processing
4. The biology of memory 12 hours
  - In search of an engram
  - Brain regions associated with memory
  - Biochemical factors in memory
5. Applications of memory research 12 hours
  - Applications in Forensic Psychology
  - Applications in Medicine
  - Applications in Educational Systems
  - Applications in Industry and Organizations

#### Suggested Reading

- Baddeley, A.D., Eysenck, M.W., & Anderson, M.C. (2015). *Memory (2nd Edition)*. USA: Psychology Press.
- Hergenhahn, B.R. (2019), *Introduction to the history of psychology (8<sup>th</sup> edition)*, USA: Cengage.
- Osaka, N., Logie, R.H., and D'Esposito, M. (Eds.). (2007). *The cognitive neuroscience of working memory*. Oxford: Oxford University Press.
- Schacter, D.L. (2001). *The Seven Sins of Memory: How the Mind Forgets and Remembers*. USA: Houghton Mifflin Harcourt.

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## M Phil Psychology Semester II

### Option 8 Human Resource Metrics and Analytics

60 hours

#### Learning Outcomes

Human resource metrics and analytics is the systematic study of people and processes in the organizations. It involves the systematic collection, analysis, and interpretation of data designed to improve decisions about talent and the organization as a whole. When equipped with metrics that are properly designed and easy to interpret, organizational leaders can make decisions that will not only improve operations, but also create systemic advantages. This course aims to provide students with the following:

1. An in-depth knowledge and application of analytical techniques to evaluate and resolve HR issues (e.g. recruitment, talent management, compensation, retention)
2. Practice analyzing HR related data
3. Insights on some mistakes to avoid when interpreting data, or when assessing reports and interpretations offered by others.
4. Acquisition of knowledge, skill, and ability to use the results of data collection and analyses to tell a story in a compelling manner so that change follows

#### Course Content

- |                                                          |          |
|----------------------------------------------------------|----------|
| 1. HR Analytics in perspective                           | 15 hours |
| • Analytics roles                                        |          |
| • Defining HR Analytics                                  |          |
| • Typical problems                                       |          |
| • Valuing HR Analytics                                   |          |
| 2. Introduction to HR Analytics                          | 15 hours |
| • Typical data sources, questions, and data issues       |          |
| • Connecting HR Analytics to business benefit            |          |
| • Techniques for establishing questions                  |          |
| • Building support and interest                          |          |
| 3. Process of data acquisition and analyses              | 15 hours |
| • Obtaining data                                         |          |
| • Cleaning data                                          |          |
| • Supplementing data                                     |          |
| • Data challenges and tough questions                    |          |
| • Correlation and causation                              |          |
| • Making HR data operational                             |          |
| 4. Predictive analytics and the organization as a system | 15 hours |
| • When to use predictive analysis                        |          |
| • Importance of innovation                               |          |
| • Organization design - Process led design               |          |
| • Workforce planning                                     |          |
| • Transition management                                  |          |
| • Impact analysis                                        |          |
| • Communication                                          |          |
| • Real time HR Analytics                                 |          |

#### Suggested reading

- Edwards, M. R., & Edwards, K. (2016). Predictive HR Analytics: Mastering the HR Metric. London: Kogan Page.
- Lahey, D. (2014). Predicting Success: Evidence-Based Strategies to Hire the Right People and Build the Best Team. USA: Wiley.
- Pease, G., & Beresford, B. (2014). Developing Human Capital: Using Analytics to Plan and Optimize Your Learning and Development Investments. USA: Wiley.
- Phillips, J., & Phillips, P.P. (2014). Making Human Capital Analytics Work: Measuring the ROI of Human Capital Processes and Outcomes. USA: McGraw-Hill.
- Sesil, J. C. (2014). Applying advanced analytics to HR management decisions: Methods for selection, developing incentives, and improving collaboration. Upper Saddle River, New Jersey: Pearson Education.

  
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C. C. S. University, Meerut

## M Phil Psychology Semester II

### Option 9 Leadership and Decision Making in Organizations

60 hours

#### Learning Outcomes

This course focused on leadership and decision making will enable students to:

1. Analyse the theories and research regarding factors affecting a manager and his functioning in complex modern organizations.
2. Analyse the research regarding decision making in modern organizations.
3. Acquire skills necessary to apply the principles learnt in the course to situations in organizations.

#### Course content

1. Leadership 30 hours
  - Leaders vs. Managers
  - Classic studies of leadership
  - Traits of a leader
  - Situational approaches to leadership
  - Contemporary approaches to leadership
  - Leader as a motivator
  - The role of leaders in teams
  - Leader as an agent of organizational change and development
  - Training and developing leaders
2. Decision making 30 hours
  - Nature of decision making
  - Decision making in organizations
  - Decision streams
  - Research on decision making
  - Rational decision making
  - Intuitive decision making
  - Biases, errors, and constraints in decision making
  - Participative decision making
  - Decision making in strategic management for competitive advantage

#### Suggested reading

- Luthans, F., Luthans, B.C., Luthans, K.W. (2015). Organizational Behavior: An Evidence-Based Approach, 13th Edition. USA: Information Age.
- Robbins, S.P., & Judge T.A. (2018). Organizational Behavior, Student Value Edition (18th Edition). USA: Pearson.
- Samuel, L.R. (2018). Future Trends: A Guide to Decision Making and Leadership in Business. USA: Rowman & Littlefield
- Scandura, T.A. (2018). Essentials of Organizational Behavior: An evidence based approach. USA: Sage.
- Storey, J. (Ed.). (2017). Leadership in Organizations (3rd Edition). New York: Routledge.



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## Proceedings of Board of studies meeting

Proceedings of the meeting of board of studies in toxicology subject held on 9.03.2019 at 11.00 AM in Department of Toxicology, C.C.S.University, Meerut.

In reference to the University letter (Ref.no. Committee cell (BOS- Toxico/3921 dated -27.02.2019), meeting of board of studies of toxicology was held on 09.03.2019 at 11.00 AM in Department of Toxicology, C.C.S.University, Meerut. The following members were present-

1. Prof. Y.Vimala, Dean Faculty of Science, C.C.S.University, Meerut (Convener)
2. Prof. S.Raisuddin, Dept. of Medical Elementology and toxicology, Jamia Hamdard University, New Delhi
3. Prof. Vineeta Shukla, Dept. of Zoology, M.D. University, Rohtak
4. Prof. S.V.S.Rana (Ex- Vicechancellor), Bundelkhand University, Jhansi
5. Dr. I.Prem kumar, Scientist-E, Institute of Nuclear Medicine and Applied Sciences, New Delhi
6. Dr. Yeshvandra Verma, Department of Toxicology, C.C.S.University, Meerut

The board approved as under-

1. The board prepared, discussed and approved the study curriculum for the degree of Masters in philosophy (M.Phil) in toxicology. (Copy enclosed) *to be effective from 2019-20*.
2. The board prepared, discussed and approved the "Pre Ph.D." course in Toxicology, *to be effective from 2019-20*.
3. The board revised the curriculum for Masters in Toxicology (M.Sc.). It was resolved to conduct each semester examination of M.Sc. including core elective and open elective. All students may be asked to take up one of the open elective as MOOC's of SWAYAM during the 2 year course of PG, which will be treated equally as one of the open electives out of the best 3. *(Changes effective from 2019-20)*
4. The board recommended that students passing out in the present academic session (2018-2019) and onwards this session, be awarded the Masters degree in Toxicology (not the Masters' degree in Zoology), *in Department of Toxicology (not in Zoology)*.
5. The candidates already registered for Ph.D. degree in Zoology, be considered for Ph.D. degree in Toxicology (not in Zoology). They should be exempted from re-registration or other formalities.
6. The board recommended that Department of Toxicology should have its own "Research Degree Committee"
7. The board approved the list of subject experts/examiners as proposed by convener.
8. The board approved the list of visiting faculties.
9. The board appreciated the academic and research contribution of Department of Toxicology.
10. The board ended with a vote of thanks to the Chairman.

*Yeshvandra Verma*  
(Yeshvandra Verma)

*Vineeta Shukla*  
(Vineeta Shukla)

*I. Prem Kumar*  
(I.Prem Kumar) 07/3/19

*Raisuddin*  
(S.Raisuddin) 9/3/2019

*S.V.S.Rana*  
(S.V.S.Rana)

*Y. Vimala*  
(Y. Vimala) 9/3/19

*Submitted for approval by the Vice-Chancellor on 9/3/19*


*Approved by the Vice-Chancellor*

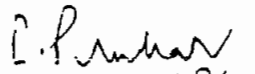
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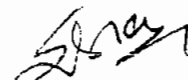
*11.3.19*

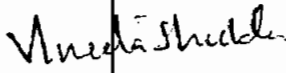
**DEPARTMENT OF TOXICOLOGY**  
**CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT**

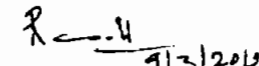
M. Phil. Toxicology Syllabus Code List PG Semester Exam						
Course	Code No.	Title of the Paper	Marks			
			Int.	Ext.	Pract.	Total
<b>Ist Semester</b>						
I		<b>Molecular Toxicology</b>	20	80	-	100
II		<b>Recent advances in Toxicology</b>	20	80	-	100
<b>IInd Semester</b>						
III		<b>Mechanisms of Cell Death</b>	20	80	-	100
IV		<b>Research Methods in Toxicology</b>	20	80	-	100
		<b>Project Work</b>			-	


  
 (Yeshvandra Verma)

  
 (I. Prem Kumar) 09/03/19

  
 (S.V.S.Rana)

  
 (Vineeta Shukla)

  
 (S. Raisuddin) 9/3/2019

  
 (Y. Vimala)

**Department of Toxicology**  
**Ch Charan Singh University, Meerut**  
*Prescribed syllabus for M.Phil. degree in Toxicology w.e.f. 2019-20*

**Admission requirement**

M.Sc. in toxicology or Forensic Sciences or Masters of Pharmacology

**First Semester courses-**

- Course I- Molecular Toxicology  
Course II- Recent advances in Toxicology

**Second semester courses-**

- Course III- Mechanisms of Cell Death  
Course IV- Research methods in Toxicology  
Project work

**Course I- Molecular Toxicology**

**Unit-I: Nuclear Receptor mediated toxicology-** a. Introduction to receptors, classification of receptors, xenoestrogens.

b. Androgen and estrogen receptor mediated toxicity. Endocrinal disruption by chemicals.

**Unit II: Covalent binding of xenobiotics to DNA and protein-** a. Covalent DNA binding, Toxicological consequences, DNA alkylation, DNA adduct identification

b. Covalent protein binding, Toxicological consequences of covalent protein binding

**Unit III: Enzymology of biotransformation-** a. Biochemical aspects of CYP-450, Glutathione

b. Glutathione-S-Transferases, Glutathione peroxidase, Catalase and superoxide dismutase

**Unit IV: DNA damage-** a. Introduction, endogenous DNA damage, Oxidative DNA damage

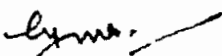
b. Environmental DNA damage, Mutagenesis, Mechanism of DNA damage- Induced mutagenesis

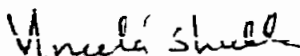
**Unit V: Chemical carcinogenesis-** a. Chemical carcinogens, Epigenetic agents, DNA Poisons, Somatic mutation theory, Epigenetic theory of carcinogenesis.


b. Oncogenes, Acute transforming retroviruses, Tumor suppressor genes, Retinoblastoma genes, p-53


**Suggested reading : (Books available in Departmental Library/Central Library)**

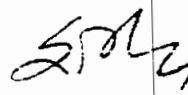
1. Molecular Toxicology, 2<sup>nd</sup> edition by P.David Josephy, B.Mannervik, Oxford Uni.Press
2. Mechanistic Toxicology by Urs Boelsterli, Taylor and Francis, Newyork
3. Advances in modern toxicology, Mutagenesis (Volume- 5) by E.G. Famm, M.A.Mehlman, Gary F.W., John Wiley and Sons Inc.
4. Chemical induction of cancer, by Arcos, J.C., Argus, M.F., and Wolf, G., (Vol.1)

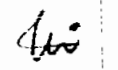
  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I.Prem Kumar) 09/08/19

  
(S.Raisuddin) 11/2/19

  
(S.V.S.Rana)

  
(Y. Vimala)

Course- II - Recent advances in toxicology

Unit -I-a. Toxicogenomics- Introduction, tools and approaches

b. Genomics, functional genomics, Microarray, applications of toxicogenomics in Toxicology

Unit- II a. Toxicoproteomics- Introduction, Concepts of proteome,

b. Proteome platforms, Methods of proteomics, applications of proteomics

Unit- III a. Metabonomics- Introduction and approaches of metabolomics, methods of metabolomics (NMR)

b. Application of metabolomics in toxicology

Unit- IV a. Biomarkers in molecular epidemiology. Identification and development of biomarkers


b. Biomarkers of exposure. Biomarkers of internal dose, biomarkers of effective dose

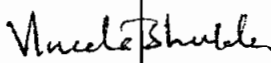
Unit -V a. Biomarkers of response- Types of biomarkers and specificity of biomarkers


b. Biomarkers of genetic susceptibility- genetic variants, analytical methods

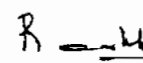
Suggested reading : (Books available in Departmental Library/Central Library)

1. An introduction to Toxicogenomics by Michael E. Burczynski, CRC Press, T&F Group
2. Molecular and Biochemical Toxicology by Robert C. Smart and E. Hodgson, Wiley

  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I. Prem Kumar) 09/03/09

  
(S. Raisuddin) 9/3/09

  
(S.V.S. Rana)

  
(Y. Vimala)

### Course III- Mechanisms of Cell death

Unit I. Causes of cell death- a. Physical agents, chemical agents (Acetaminophen, carbon tetrachloride), microbial agents

b. Ionizing radiation, Reversible Vs irreversible cell injury

Unit II a. Apoptosis- Introduction, history, morphological features of apoptosis

b. Molecular mechanisms of apoptosis, Role of mitochondria, caspases in apoptosis, Suppression of apoptosis, Detection of apoptosis

Unit III. a. Necrosis- Introduction, classification of necrosis, Ischemic cell injury, Role of LPO in necrosis

b. Necrosis by ionizing radiation, Role of  $Ca^{++}$  in cell death

Unit IV. Oxidative stress and cell death- a. Endogenous oxidative stress, Reactive oxygen species (Free radicals), Xenobiotic induced intracellular ROS production

b. Toxicological consequences of oxidoreductive stress, Oxidative damage to proteins, lipids and DNA with suitable examples

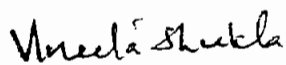
Unit V. Antioxidants- a. Introduction to antioxidants, Nonenzymatic antioxidants- Vitamin E, ascorbic acid, Beta carotene, Selenium

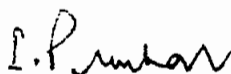
b. Enzymatic antioxidants- Glutathione peroxidase, catalase, superoxide dismutase

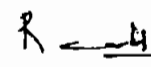
#### Suggested reading : (Books available in Departmental Library/Central Library)

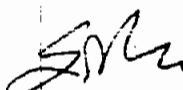
1. Apoptosis in Toxicology by Ruth Roberts, Taylor and Francis
2. Introduction to biochemical toxicology by E. Hodgson and R.C.Smart, A John Wiley & Sons, Inc. Publication.
3. Mechanistic Toxicology by Urs Boelsterli, Taylor and Francis, Newyork


  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I.Prem Kumar)

  
(S.Raisuddin) 7/2/2017

  
(S.V.S.Rana)

  
(Y. Vimala)

Course IV- Research methods in Toxicology

Unit I -a. Tissue digestion and cell separation, Centrifugation and Ultracentrifugation  
b. Maintenance of isolated cells, animal cell culture, stem cells culture

Unit II -a. Molecular cloning, vectors, recombinant DNA technology  
b. Southern and Northern and western blot analysis


Unit III- a. Polymerase chain reaction, Real time PCR, Application of PCR  
b. DNA microarray technology

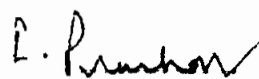
Unit IV- a. Mass spectrometry, Flow cytometry, Instrumentation and applications  
b. Nuclear magnetic resonance spectroscopy. Instrumentation and applications

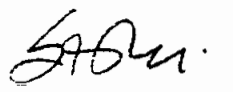
Unit V- a. Transgenic mice, procedure for making transgenic mice- using zygote injection  
b. Procedure for making Knockout mice using embryonic stem cells

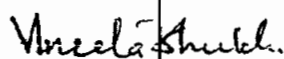
Suggested reading: Books available in Departmental Library/Central Library)


1. PCR protocols in molecular Toxicology by John P. Vanden Heuvel, CRC Press, NY
2. Principles and techniques of biochemistry and molecular biology by Keith Wilson and J. Walker, Cambridge University Press
3. An introduction to Molecular Biotechnology by Michael Wink, Wiley-VCH
4. Microarray technology and its application by U.R. Muller, D.V. Nicolau, Springer
5. Culture of animal cells: a manual of basic technique and specialized applications by R. Ian Freshney, Wiley-Blackwell

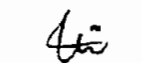
  
(Yeshvandra Verma)

  
(I. Prem Kumar)

  
(S.V.S. Rana)

  
(Vineeta Shukla)

  
(S. Raisuddin) 9/3/2019

  
(Y. Vimala)

## Syllabus for Ph.D. Course work (Paper- I Common for Science faculty)

### Paper-I

#### Research methodology and computer applications

This course is common for doctoral research students of all the subjects in Science faculty. The objective of the course is to acquaint research student with scientific research methods and approaches.

##### Unit-1

Basic principles of research, objectives of research, importance, types of research: Basic and applied, Selection of a research topic and problem, assessment of current status of topic chosen, literature survey and reference collection, formulation of hypothesis, research design, sampling designs, ethics in research, code of ethics, fabrication of data, plagiarism, Laboratory animals and their use in toxicological studies, animal ethical laws, biosafety rules and regulations in biological research (for Toxicology only).

##### Unit -2

Types and sources of data, data collection methods, primary data, secondary data, analysis for specific type of data, tabulation and graphical representation, central tendency, dispersion, skewness, correlation, regression, Chi-square test, t and F tests, ANOVA- one way and two way, important non parametric tests: Sign, RUN, Kendall's coefficient.

##### Unit-3

Significance of report writing, different steps in writing report and research papers, layout of the research report, oral and written presentation of research (abstract/synopsis), mechanics of writing a research report, precautions for writing research reports, conclusions, impact factor and citation index

##### Unit-4

Computer and internet: Networking, different LAN and WAN connections, connection to a network, web browsers, internet security, Web Search Engine, MS word, Handling graphics, Tables and Charts, converting a word document into various formats like- Text, rich Text, Word perfect, HTML, PDF etc. MS power point: creating slide show with animations, creating a blank presentation, page layout, Power point screen, Screen layout and views, insert a new slide, applying design template, changing slide layout, reordering and hiding slides, slide show and editing custom slide

Data analysis and display: facilities in MS Excel for data analysis and display, other data display softwares, case study: origin, software for scientific and statistical analysis: case studies: SPSS database: creating a database

Educational and research resources on Net: Encyclopedia, case study Wikipedia, on line tutorials and lectures, Java Applets, Educational Applet, Virtual Labs, Electronic Journals, e-books, digital libraries, searching research information using J- gate and SCOPUS, Science direct.

##### Suggested reading

Research Methodology -methods and techniques by C.R. Kothari, second revision

Research Methodology a step by step guide for beginners by Ranjit kumar

Research Methodology- methods and Statistical techniques by Santosh Gupta

Statistical methods by S.P.Gupta

Research Design, Qualitative, Quantitative and mixed methods approaches by W. Creswell, third edition

information communication technology by Time Shorts

handbook of communication and social interaction skills by John O Green, Grant Raney, Burleson

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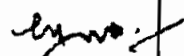
**Department of Toxicology**  
**Ch Charan Singh University, Meerut**

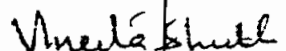
**Ph. D. Course work in Toxicology (Paper-II)**


- Unit I-**
- a. **Fundamentals of Toxicology**
    - i. Toxic agents, exposure to toxic agents, general health effects of toxic agents
    - ii. Dose response relationship, factors affecting toxicity, toxicity testing
  - b. **Environmental toxicology**
    - i. Health effects of air and water pollution, radioactive pollution
    - ii. Ecotoxicology, ecologic risk assessment
- Unit II-**
- a. **Hepatotoxicity**
    - i. Structural organization of the liver, hepatic functions
    - ii. Types of liver injury. Mechanism of liver injury
  - b. **Renal Toxicity**
    - i. Functional anatomy of kidney, assessment of renal functions
    - ii. Biochemical mechanism of liver injury. Effects of mercury, cadmium, benzene on kidney
- Unit III-**
- a. **Neurotoxicity**
    - i. Anatomy of nervous system, mechanism of neural transmission
    - ii. Neuropathies, Effects of lead, nicotine and amphetamines on nervous system
  - b. **Reproductive/ Developmental toxicity**
    - i. Gonadal (testes and ovary) structure and functions. Biotransformation of xenobiotics by testes and ovary
    - ii. Endpoints of reproductive toxicity in males and females
- Unit IV-**
- a. **Toxicity of heavy metals**
    - i. Toxicity of essential metals (copper, iron and zinc)
    - ii. Toxicity of nonessential metals (Arsenic, cadmium, lead, mercury)
  - b. **Toxicity of organic solvents**
    - i. Environmental contamination by organic solvents, toxicity of chlorinated hydrocarbons (trichloroethylene and carbon tetrachloride)
    - ii. Toxicity of aromatic hydrocarbons (Benzene and toluene), toxicity of alcohol
- Unit V-**
- a. **Toxicity of pesticides**
    - i. Classification of pesticides, Occupational exposure of pesticides, Ecotoxicology of pesticides
    - ii. Biotransformation, distribution, bioaccumulation and toxicity of insecticide (DDT), herbicide (Glyphosate), fungicide (dithiocarbamate) and fumigant (phosphine)
  - b. **Occupational and industrial toxicology**
    - i. General idea of occupational diseases, regulatory provisions to prevent occupational diseases
    - ii. Toxicological evaluation of industrial chemicals, concepts of biological monitoring

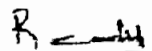
**Suggested readings: (Books available in Departmental Library/Central Library)**

1. Casarett & Doull's Toxicology- The basic science of poisons by Curtis Klaassen, McGraw Hill
2. General and applied Toxicology by Ballantyne, T. Marrs, T. Syversen, Macmillan, UK


  
(Yeshivandra Verma)

  
(Vineeta Shukla)

  
(P. Prem Kumar)

  
(S. Raisuddin) 9/2/2019

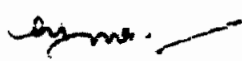
  
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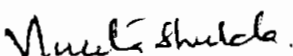
  
(Y. Vimala)

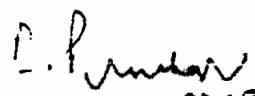


**DEPARTMENT OF TOXICOLOGY**  
**CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT**

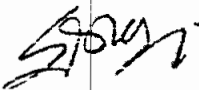
M. Sc. Toxicology Syllabus Code List PG Semester Exam 2019-20						
Course	Code No.	Title of the Paper	Marks			
			Int.	Ext.	Pract.	Total
<b>Ist Semester</b>						
I	CH-1582	<b>Principles of Toxicology</b>	40	40	-	80
II	CH-1583	<b>Environmental Toxicology</b>	40	40	-	80
III	CH-1584	<b>Systemic Toxicology (organ toxicity)</b>	40	40	-	80
IV	CH-1585	<b>Cellular and Molecular Toxicology</b>	40	40	-	80
	CH-582	Practicals based on I-IV			80	80
		Open Elective - I				100
<b>IInd Semester</b>						
V	CH-2582	<b>Immunotoxicology</b>	40	40	-	80
VI	CH-2583	<b>Biochemical toxicology</b>	40	40	-	80
VII	CH-2584	<b>Mutagenesis and Carcinogenesis</b>	40	40	-	80
VIII		<b>Occupational and Industrial Toxicology</b>	40	40	-	80
	CH-682	Practicals based on V-VIII			80	80
		Open Elective - II				100
<b>IIIrd Semester</b>						
IX	CH-3582	<b>Toxicology of heavy metals</b>	40	40	-	80
X	CH-3583	<b>Toxicology of Pesticides</b>	40	40	-	80
XI	CH-3584	<b>Toxicology of organic solvents</b>	40	40	-	80
XII	CH-3585	<b>Regulatory toxicology</b>	40	40	-	80
	CH-782	Practicals based on IX-XII			80	80
		Open Elective - III				100
<b>IVth Semester</b>						
XIII	CH-4582	<b>Tools and Techniques in Toxicology</b>	40	40	-	80
XIV	CH-4583	<b>Applied Toxicology</b>	40	40	-	80
XV		<b>Forensic Toxicology</b>	40	40	-	80
XVI	CH-4585	<b>Experimental design and Biostatistics</b>	40	40	-	80
	CH-882	Practicals based on XIII-XVI			80	80
		Open Elective - IV				100


  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I. Prem Kumar) 7/03/19

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(S. Raisuddin) 7/2/19

  
(S.V.S. Rana)

  
(Y. Vimala)

**Department of Toxicology**  
**Ch Charan Singh University, Meerut**

*Prescribed syllabus for M.Sc. degree in Toxicology w.e.f. July 2019*

*Duration of the program----- Two years (Four semesters)*

*Number of modules (Courses) ---16*

*Courses to be taught in each semester ---- 04*

*Nature of course- Regular*

**What is Toxicology?**

Study of poisons is known as toxicology. There is the old saying that "the dose makes the poison". Yes, everything is toxic at some level which makes the study of toxicology relevant to a number of areas including human health, the environment, public policy, drug development and human safety. Across the globe, there are a range of potential study options from managing our workplaces to food safety and human responses to chemicals. Following sections show modules that you will study during two years M.Sc. program.

**History**

The Toxicology Course on regular basis at CCS University, Meerut was established in 2004 with the support from University Grants Commission, New Delhi. Foundation of the course was supported by CCS University, Meerut. About 200 students thus far have attended the course and many of them hold important positions in India and overseas.

**Objectives**

Toxicology is the science of chemical safety. Aim and mission of Toxicology is to identify potential harmful effects of chemical compounds to humans, animals and the environment and to provide for their prevention and treatment. Appropriate experimentation and expert judgement allows to minimize the probability of the occurrence of adverse effects, which in the past have sometimes been of catastrophic dimension. Toxicology is a multidisciplinary science based upon physiology, biochemistry, molecular biology, chemistry, pharmacology, pathology, epidemiology and several others. Comprehensive education and training on an up-to-date level of toxicological science is mandatory.

*Successful attendants are qualified*

- + to identify and characterize adverse effects of chemical compounds
- + to elucidate mechanisms of their action at the cellular and molecular level
- + to review and assess safety data generated for a specific chemical
- + to estimate the probability of the occurrence of adverse effects ( risk assessment)
- + to responsibly contribute to risk-benefit evaluation, risk management and risk communication
- + to develop approaches for prevention, diagnosis and treatment of adverse effects.

**Admission requirement**

B.Sc. (Zoology, Botany, chemistry group) or B.Sc. Forensic science. There are 20 seats offered to students. Admission dates -as announced by the University.

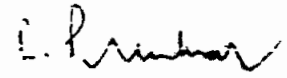
**Structure and contents**

The course consists of theoretical and practical education. The overall duration is two years.

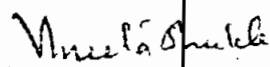
Theoretical knowledge is provided in 16 modules. They consists of lectures, demonstrations and practical exercises, each module is completed by a written examination. All modules will be taught at Ch Charan Singh University, Meerut.

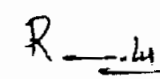
Additional training (summer training) is acquired in institutions dedicated to toxicology or a related field.


  
(Yeshvandra Verma)

  
(I. Prem Kumar) 07/09/19

  
(S.V.S. Rana)

  
(Vineeta Shukla)

  
(S. Raisuddin) 9/3/2019

  
(Y. Vimala)

Modules (Courses)

Ist Semester

1. Principles of toxicology
2. Environmental Toxicology
3. Systemic Toxicology
4. Cellular and molecular toxicology

*Practical exercises based on the above courses*

IInd Semester

5. Immunotoxicology
6. Biochemical Toxicology
7. Mutagenesis and carcinogenesis
8. Occupational and industrial toxicology

*Practical exercises based on the above courses*

IIIrd Semester

9. Toxicology of heavy metals
10. Toxicology of pesticides
11. Toxicology of organic solvents
12. Regulatory toxicology

*Practical exercises based on the above courses*

IV Semester

13. Tools and techniques in toxicology
14. Applied toxicology
15. Forensic Toxicology
16. Experimental design and Biostatistics

*Practical exercises based on the above courses*

**All students may be asked to take up one of the open elective as MOOC's of SWAYAM during the 2 year course of PG, which will be treated equally as one of the open electives out of the best 3.**

**Covered in several modules are-**

Non clinical safety

Nutritional Toxicology

Occupational Health

*In vitro* toxicology

Risk assessment and risk management

**Requirements for completion**

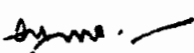
Successful attendance in each semester and respective modules

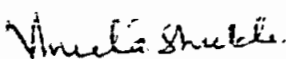
Documentation of practical training

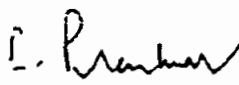
Positive summer training or project report


Passing marks at each examination (theory and practical both) conducted by the University

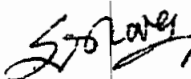
**Medium of instructions** - English

  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I.Prem Kumar) 07/07/19

  
(R.Raisuddin) 9/3/19

  
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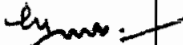
Course 1:

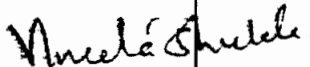
Principles of Toxicology

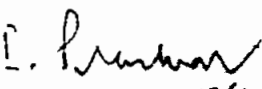
- Unit I: (a) Introduction, definition, brief history, scope and sub-divisions of toxicology  
(b) Classification of toxins, natural toxins, animal toxins, plant toxins, food toxins, genetic poisons and chemical toxins
- Unit II: (a) Basic concepts- Dose and dose response relationship, types of toxic effects (allergic reactions, idiosyncratic reactions, reversible and irreversible effects, acute toxicity, sub acute toxicity, sub chronic effects and chronic effects)  
(b) Factors affecting toxicity- Species and strain, age, sex, nutritional status, hormones, circadian rhythms and environmental factors
- Unit III: Absorption and distribution of toxins, portals of entry- Skin, gastrointestinal tract, gills and respiratory system
- Unit IV: (a) Concept of toxicokinetics and toxicodynamics  
(b) ADME, bioaccumulation, biotransformation and biomagnifications, antagonism, synergism


Suggested readings (Books available in Departmental Library/Central Library)

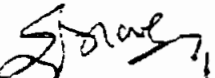
1. Casarett & Doull's Toxicology- The basic science of poisons by Curtis Klaassen, McGraw Hill
2. Selective Toxicity, Albert A., Methuen, London
3. Environmental Pollution-Health and Toxicology by Rana, S.V.S. Narosa Publishing House, Delhi
4. Food and Nutrition toxicology by Stanley T. Omaye, CRC Press
5. Principles of toxicology, Chichester Weinheim, New York
6. Principles of Biochemical Toxicology By John Timbrell, Taylor and Francis
7. Dictionary of toxicology by E.Hodgson, M.Roe, Academic Press
8. Handbook of Toxicology, by Derelanko, CRC Press


  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I.Prem Kumar) 07/0/19

  
(S.Raisuddin) 9/3/2019

  
(S.V.S.Rana)

  
(Y. Vimala)

Course 2:

**Environmental Toxicology**

Unit I: (a) Air pollution- Classification and properties of air pollutants, Behaviour and fate of air pollutants, photochemical smog, acid rain, health effects of air pollutants in man.

(b) Noise pollution- Sources of noise pollution, domestic noise pollution, traffic noise, other sources of noise pollution, and health effects of noise pollution

Unit II: (a) Water pollution- Origin of Wastewater, Types of water pollution (domestic, Industrial, agricultural, solid waste, thermal and oil pollution).

(b) Toxic water pollutants and their health effects, ground water pollutions, health effects of marine pollution, case studies.

Unit III: (a) Radioactive pollution- Sources of radioactive pollution, health effects of radiation, famous incidents of radioactive pollution

(b) Solid waste pollution, Classification of solid waste, E-waste, Public health aspects of solid waste pollution

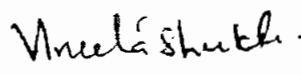
Unit IV: (a) Soil and land pollution- Soil acidification, Salinization, sodification, industrial soil pollution, soil pollution by petro-products

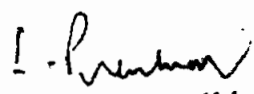
(b) Ecotoxicological episodes, entry, fate, movement of pollutants in ecosystems, scientific approach to ecotoxicology


**Suggested reading: (Books available in Departmental Library/Central Library)**

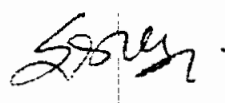
1. **General and applied Toxicology** by Ballantyne, T. Marrs, T. Syversen (Volume-II), Macmillan, UK
2. **Fundamentals of Ecotoxicology** by Nowman and Michael, CRC Press, Taylor & Francis Groups
3. **Environmental toxicology** by J. Rose., Gordon and Breach Science Publishers.
4. **Environmental Pollution, health and Toxicology** by Rana, S.V.S., Narosa, New Delhi
5. **Environmental toxicology and Chemistry** by D.G. Crosby, Oxford university Press, UK
6. **Environmental Toxicology: Biological and health effects** by Yu Ming Ho et al, CRC Press.

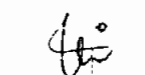
  
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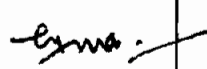
Course 3:

**Systemic Toxicology (organ toxicity)**


- Unit I:** (a) Cutaneous toxicity- Skin as a barrier against toxins, dermatitis (irritant dermatitis, allergic dermatitis, chemical burns), pigmentary disturbances, phototoxicity, skin cancer by radiation, arsenic and PAH  
(b) Pulmonary toxicity- Mechanisms of lung injury, mechanism of gaseous exchange in lungs, oxidative burden, agents that cause lung injury, acute and chronic responses during lung injury (airway reactivity, pulmonary edema, fibrosis, emphysema, asthma and lung cancer.
- Unit II:** (a) Hepatotoxicity- mechanisms of liver injury, case studies pertaining to carbon tetrachloride and acetaminophen, types of liver injury (fatty liver, cholestasis, bile duct damage, sinusoidal damage, liver cell death- necrosis and cirrhosis, Liver tumors)  
(b) Renal toxicity- mechanisms of renal injury, specific nephrotoxins (heavy metals, halogenated hydrocarbons, therapeutic agents), nephropathy.
- Unit III:** (a) Neurotoxicity- neurotoxins, neuropathy by methyl mercury, axonopathy by carbon disulfide and myelopathy by lead, neurotoxicity by nicotine, cocaine and amphetamines.  
(b) Cardiotoxicity- cardiotoxins (alcohol, centrally acting drugs, steroids and solvents), disturbances in cardiac functions, and general mechanisms of cardiotoxicity.
- Unit IV:** (a) Reproductive toxicity- Gonadotoxic agents, mechanisms of reproductive toxicity, effects of toxins on spermatogenesis and oogenesis, gonadal tumorigenesis.  
(b) Endocrinal toxicity- endocrine toxins and mechanisms of their toxicity in pituitary, thyroid, adrenal.

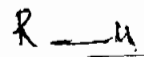
**Suggested reading: (Books available in Departmental Library/Central Library)**

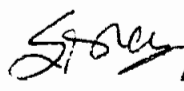
1. General and applied Toxicology by Ballantyne, T. Marrs, T. Syversen (Volume-II), Macmillan, UK
2. Comprehensive Toxicology. Vol.6-11 (In Sipes, I.G., McQueen, C.A. and Gandolfi, A.J., Pergamon Press Oxford.
3. Toxicology by Hans Marquardt et al. Academic Press.
4. Toxicology of Skin by Maibach, Taylor and Francis, informa healthcare
5. Dermatotoxicology by H. Zhai and H.I. Maibach, CRC Press
6. General Applied and Systems Toxicology, Wiley Science
7. Hepatotoxicity: The adverse effects of drugs and other chemicals on the liver by Hyman J. Zimmerman, Lippincott Williams and Wilkins
8. Endocrine and Hormonal Toxicology by P.W. Harvey
9. Endocrinal disruptors by Naz, R.K., CRC Press


  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I.Prem Kumar) 02/03/19

  
(S.Raisuddin) 11/3/2019

  
(S.V.S.Rana)

  
(Y. Vimala)

Course 4:

Cellular and Molecular Toxicology

Unit I: Effects of toxins on plasma membrane, passive transport, active transport, diffusion, membrane fluidity.

Unit II: (a) Effects of toxins on endoplasmic reticulum- ER enzymes, effects of toxins on ER enzymes

(b) Effects of toxins on mitochondria- mitochondrial membrane permeability, electron transport disturbances, oxidative injury to mitochondria, Apoptosis

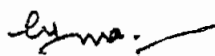
Unit III: (a) Apoptosis & toxicants

(b) Effects of toxins on Microsomes and peroxisomes- Microsomal induction by chemicals, peroxisomal proliferation by toxins, microsomal enzymes, peroxisomal enzymes and their role in cell injury

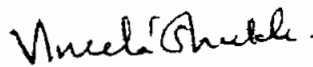
Unit IV: Effects of toxins on cytoskeleton-Effects of toxins on actin filaments (microfilaments), intermediate filaments, cilia & flagella.

Suggested reading: (Books available in Departmental Library/Central Library)

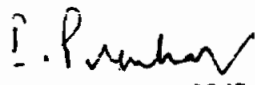
1. Cell and molecular biology: Concepts and experiments by G.Karp, Wiley
2. Molecular biology of the cell by B. Alberts , A.Johnson et al., Garland Science, T&F Group
3. General and applied Toxicology by Ballantyne, T. Marrs, T. Syversen (Volume-II), Macmillan, UK
4. Handbook of Toxicological pathology by W.M. Haschek, C.G. Rousseaux, M.A. Walling.,(Volume-1), Academic Press



(Yeshvandra Verma)



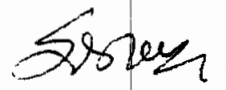
(Vineeta Shukla)



(I.Prem Kumar) 07/03/19



(S.Raisuddin) 9/3/19



(S.V.S.Rana)



(Y. Vimala)

Course 5:

Immunotoxicology

Unit I: (a) The immune system (i) – innate immunity, components of immune system (NK, PMN, Macrophage), soluble factors, acute phase proteins and complements

(b) The immune system (ii) - Acquired- general aspects, cellular components –APCs, T-cells, B- cells, Humoral and cell mediated immunity.

Unit II: (a) Structure and functions of primary and secondary lymphoid organs (bone marrow, thymus, spleen), immunoglobulins.

(b) Leukocyte toxicity- Components of leukocytes, toxic effects on granulocytes, neutropenia, human leukemia, leukemogenic agents and mechanism of toxic leukemogenesis.

Unit III: (a) Immunotoxicity- Immunomodulation by xenobiotics

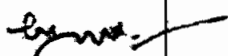
(b) immunosuppression, examples of immunosuppression- tobacco smoke and UV- radiation. Immunotoxicity of lead and TCDD. Immune mediated diseases (hypersensitivity and autoimmunity).

Unit IV: (a) Animal models in immunotoxicology, immunotoxicity testing,

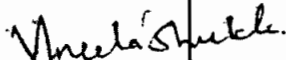
(b) Evaluation of mechanisms of action of immunotoxicants, health effects test guidelines.

Suggested reading (Books available in Departmental Library/Central Library)

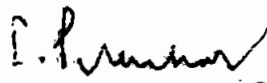
1. **Blood: Principles and practice of hematology**, by Handlin, R.I., Lux, S.E., and Stossel, T.P., Lippincott Williams and Wilkins, Philadelphia
2. **Toxicology of hematopoietic system & Tox. of Immune system, Vol.4 &5.** by Bloom, J.C. (In Sipes, I.G., McQueen, C.A. and Gandolfi, A.J., **Comprehensive Toxicology**. Pergamon Press Oxford.
3. **Fundamental Immunology** by Paul, W.E., Raven Press New York
4. **Toxicology of immune system, Vol. 5.** by Lawrence, In Sipes, I.G., McQueen, C.A. and Gandolfi, A.J., **Comprehensive Toxicology**. Pergamon Press Oxford.
5. **Methods in immunotoxicology** by Burlson Gary, Wiley-Liss
6. **Mechanistic toxicology** by Bodsterli, Urs A. Boelsterli, CRC Press.
7. **Immunology, the immune system in health and diseases** by C.A. Janeway, Garland publishing, London



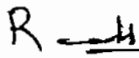
(Yeshvandra Verma)



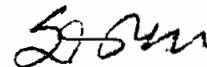
(Vineeta Shukla)



(I. Prem Kumar) 07/03/19



(S. Raisuddin) 9/3/2019



(S.V.S. Rana)



(Y. Vimala)



Course 6:

**Biochemical Toxicology**

Unit I: (a) Mechanism of Toxicity- Biotransformation of xenobiotics, phase- I reactions (hydrolysis, reduction, oxidation), activation of xenobiotics by CYP450, Phase -II reactions (glucuronidation, methylation, acetylation, amino acid conjugation, glutathione conjugation).

(b) Phase -III reactions- transport mechanism.

Unit II: (a) Lipid peroxidation- Introduction of LPO, Types of reactive species, mechanism of free radical generation, the role of super oxide anion, hydrogen peroxide and hydroxyl radical in toxicity of xenobiotics.

(b) Oxidative stress- Definition, toxicological consequences of oxidative stress, oxidative damage to proteins, DNA and lipids. Oxidative stress and disease.

Unit III: (a) Antioxidative defence mechanisms- Enzymatic antioxidants


(b) non-enzymatic antioxidants

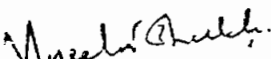
Unit IV: (a) Disturbances in calcium homeostasis and cell injury, xenobiotic induced alterations in intracellular calcium distribution, toxicological consequences of increased intracellular calcium concentrations.

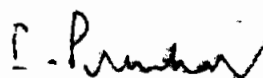
(b) Energy disturbances- disruption in cellular energy production, mitochondrial targets, protonophoric and uncoupling activity of xenobiotics, inhibition of NADPH production, inhibition of electron transport.


**Suggested reading: (Books available in Departmental Library/Central Library)**

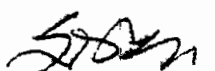
1. Principles of biochemical toxicology by John Timbrell, CRC Press.
2. A text book of modern Toxicology By Ernest Hodgson, Wiley.
3. Introduction to biochemical toxicology by E. Hodgson and R.C.Smart, A John Wiley & Sons, Inc. Publication.
4. Comprehensive Toxicology. Biotransformation. Vol.3. In Sipes, I.G., McQueen, C.A. and Gandolfi, A.J., Pergamon Press Oxford.
5. Casarett & Doull's Toxicology- The basic science of poisons by Curtis Klaassen, McGraw Hill
6. Principles and methods of toxicology by Wallace A. Hayes, CRC Press, Taylor and Francis group.
7. Cytochromes P450: Metabolic and toxicological aspects by Ioannides Costas, CRC Press.


  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I. Prem Kumar) 07/08/19

  
(S. Raisuddin) 9/3/2019

  
(S.V.S. Rana)

  
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Course 7:

**Mutagenesis and Carcinogenesis**

Unit I: (a) General characteristics of carcinogens, history of chemical carcinogens, organic and inorganic carcinogens, hormonal carcinogens, direct acting carcinogens, procarcinogens, co-carcinogens, epigenetic carcinogens.

(b) Introduction to genetic toxicology, mutagenesis and carcinogenesis. Chromosomal aberrations, mutation in somatic and germ cells. Oncogenes, tumor suppressor genes.

Unit II: (a) Biochemical mechanisms of chemical carcinogenesis- Metabolism of chemical carcinogens, free radicals and chemical carcinogenesis, formation of macromolecular adducts by chemical carcinogens, radiation and carcinogenesis

(b) Molecular mechanisms of chemical carcinogenesis- Formation of DNA adduct, DNA damage, repair and disrepair, stages of carcinogenesis (Initiation, promotion, progression), Miller and Miller theory.

Unit III: (a) Oncogenes- Viral and cellular oncogenes, oncogene activation by retrovirus, oncogene activation by leukemia virus, target oncogenes in chemical carcinogenesis

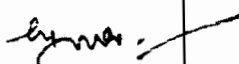
(b) Organic carcinogens- Polycyclic hydrocarbons, polycyclic aromatic hydrocarbons, alkylating agents, N-Nitroso compounds, mechanism of their toxicity.

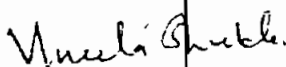
Unit IV: (a) Inorganic carcinogens- arsenic, asbestos, chromium and nickel, mechanisms of their toxicity.


(b) Assay of carcinogenesis- short term bioassay, long term assay, chromosomal aberration test, micronuclei test, Ames test, Gene mutation assay, Use of transgenic animals in carcinogenesis testing.

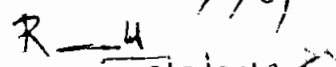
**Suggested readings (Books available in Departmental Library/Central Library)**

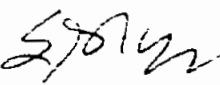
1. Comprehensive Toxicology by Charlene A. Mc Queen, Chemical Carcinogens & anticarcinogens, Volume-12, Pergamon Press Oxford.
2. Advances in modern toxicology, Mutagenesis (Volume- 5) by E.G. Flamm, M.A.Mehlman, Gary F.W., John Wiley and Sons Inc.
3. Toxicology by Hans Marquardt et al. Academic Press.
4. Chemical induction of cancer, by Arcos, J.C., Argus, M.F., and Wolf, G., (Vol.1)
5. The molecular basis of cancer by Mendelsohn and others, Saunders, Philadelphia (Elsevier)
6. Handbook of Toxicological pathology by W.M. Haschek, C.G. Rousseaux, M.A. Walling., (Volume-2), Academic Press
7. Mycotoxins and N-Nitroso compounds: Environmental risk (Volume-1) by R.C.Shank, CRC press


  
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(I.Prem Kumar) 09/10/19

  
(S.Raisuddin) 9/3/2019

  
(S.V.S.Rana)

  
(Y. Vimala)

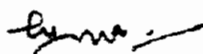
**Course 8:**

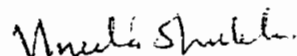
**Occupational and Industrial Toxicology**

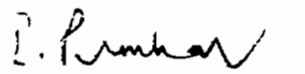
- Unit I** (a) Occupational hazards- Physical hazards, Chemical hazards, Biological hazards, Mechanical hazards, psychosocial hazards  
(b) Occupational diseases- Pneumoconiosis, silicosis, asbestosis, anthracosis, byssinosis, bagassosis, Farmers' lung
- Unit II** Occupational Cancers- Skin cancer, Lung cancer, Bladder cancer, Leukemia
- Unit III** (a) Prevention of occupational diseases- Medical measures, Engineering measures, Legislative measures, Occupational health in India  
(b) Industrial toxicology- History and basic features with case studies
- Unit IV** Monitoring & management of occupational & industrial toxicants


**Suggested reading: (Books available in Departmental Library/Central Library)**

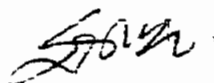
1. Toxicology and risk assessment by A.M. Fan and L.W.Chang, Pan Stanford
2. Fundamentals of industrial hygiene by H. Plogg, A. Barbara et al., National Safety council
3. Industrial chemical exposure: Guidelines for Biological monitoring by R.R. Lauwerys and P.Hoet., CRC Press.
4. Risk assessment of chemicals: An introduction by Leeuwen, C.J. Van; Vermeire, T.G., Springer.
5. Environmental Pollution-Health and Toxicology by Rana, S.V.S. Narosa Publishing House, Delhi
6. General and applied Toxicology by Ballantyne, T. Marrs, T. Syversen (Volume-III), Macmillan, UK


  
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Course 9:

**Toxicology of Heavy Metals**

Unit I: (a) Toxicity of trace elements- toxicity of iodine, iron, copper, zinc, molybdenum, manganese, selenium and cobalt in man/animals.

(b) Introduction to bioinorganic chemistry, general idea about trace elements, role of trace elements in human nutrition, non nutritive elements, toxic elements.

Unit II: (a) Heavy metals & their toxicity (lead, cadmium, mercury and arsenic)

(b) Heavy metals & carcinogenesis- Effects of metals on gene expression.

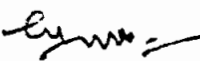
Unit III: (a) immunotoxicity of metals- Immunosuppression and hypersensitive reactions, immunosuppression by metals, mechanisms of immunotoxicity, hypersensitivity reactions by heavy metals viz. chromium, mercury and nickel.

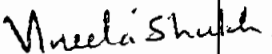
(b) Reproductive and developmental toxicity of metals – male reproductive toxicity, female reproductive toxicity and developmental effects of metals with special reference to lead, mercury and cadmium.

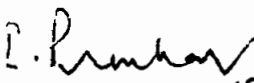
Unit IV: Ecotoxicology of metals- Sources of emission, biogeochemical transport, uptake, storage, Ecosystem effects of heavy metals viz. cadmium and mercury. Monitoring.


**Suggested reading: (Books available in Departmental Library/Central Library)**

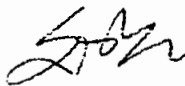
1. Handbook on the Toxicology of metals, by Nordberg, G.F., Fowler, B.A., Nordberg, M and Friberg, L.T., Academic Press, London
2. Toxicology by Hans Marquardt et al. Academic Press.
3. Trace elements in human health and disease by Ananda S. Prasad and D.Oberleas, Academic Press.
4. Trace elements in human and animal nutrition by E.J.Underwood, Academic Press
5. Handbook of Human Toxicity by Edward J. Massaro, CRC Press
6. Chromium: Metabolism and toxicity by Desmond Burrows, CRC Press.

  
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**Course 10:**

**Toxicology of Pesticides**

**Unit I:** (a) Introduction to pesticides, classification of pesticides

(b) Generation of pesticides, chemistry of pesticides, uses and exposure

**Unit II:** (a) Toxicity of organochlorine compounds – DDT, lindane, endrin and chlordecone, mechanism and organ toxicity, case studies

(b) Toxicity of organophosphates- Parathion, malathion and dichlorovos, mechanism and organ toxicity, case studies.

**Unit III:** (a) Toxicity of carbamates - Aldicarb, carbaryl, methiocarb,

(b) Toxicity of Pyrethroids synthetic pyrethroids, pyrethrin, mechanism and organ toxicity, case studies.


**Unit IV:** (a) Toxicity of herbicides – Paraquat, fungicide- hexachlorobenzene and organomercurials, fumigants- phosphine and ethylene, mechanism and organ toxicity, case studies.

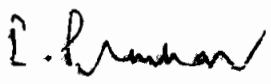
(b) Movement of pesticides in the animal & plant system- suitable examples of aquatic toxicity, wild life toxicity, poultry and birds, biopesticides.


**Suggested reading: (Books available in Departmental Library/Central Library)**

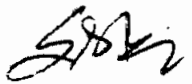
1. Pesticides studied in Man by Hayes, W.J.Jr. Williams and Wilkins, Baltimore, Md.
2. IARC Monograph on the evaluation of carcinogenic risk of chemicals to man. Some Organochlorine pesticides, Lyon, France.
3. IARC Monograph on the evaluation of carcinogenic risk of chemicals to man. Some carbamates, thiocarbamates and carbazines, Lyon, France.
4. IARC Monograph on the evaluation of carcinogenic risk of chemicals to man. Some fumigants, herbicides and industrial chemicals, Lyon, France.
5. Toxicology of organophosphate and carbamate compounds by Gupta, R.C., Elsevier
6. Insecticides: Toxicology and uses by H.C.L.Gupta., Agrotech Publishing Academy (India)
7. Toxicology by Hans Marquardt et al. Academic Press.


  
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(I. Prem Kumar) 9/03/19

  
(S. Raisuddin) 9/3/2019

  
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Course 11:

**Toxicology of Organic Solvents**

Unit I: (a) General properties of solvents, industrial and commercial uses of solvents, general toxicity (neurotoxicity, hepatotoxicity, renal toxicity and behavioural toxicity) of solvents.

(b) Metabolism of organic solvents, generation of reactive intermediates and reactive oxygen species, metabolic interactions.

Unit II: (a) Toxicity of aliphatic solvents- carbon tetrachloride, chloroform, trichloroethylene, tetrachloroethylene.

(b) Toxicity of aromatic hydrocarbons- benzene, toluene, xylene, styrene.

Unit III: (a) Toxicity of alcohols- ethyl alcohol, methyl alcohol, isopropyl alcohol

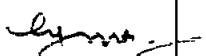
(b) Toxicity of food additives- polycyclic hydrocarbons, heterocyclic amines, synthetic carcinogens, nitrosamines.

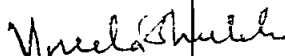
Unit IV: (a) Hematotoxicity, haematopoietic effects, leukemogenic and clastogenic effects of organic solvents.


(b) Biological monitoring of organic results, methods of monitoring with case studies

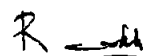
**Suggested reading: (Books available in Departmental Library/Central Library)**

1. Food and Nutrition toxicology by Stanley T. Omaye, CRC Press
2. Toxicity and metabolism of industrial solvents by Ethel Browning, Elsevier.
3. Toxicology by Hans Marquardt et al. Academic Press.
4. Environmental monitoring by G.B. Wiersma, CRC Press

  
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(S. Raisuddin) 9/2/2019

  
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(Y. Vimala)

Course 12:

Regulatory Toxicology

Unit I: (a) Regulatory institutions- FDA, EPA, WHO, IARC, OSHA, ACGIH, UNEP.

(b) Programs for regulating chemical hazards- FDA, human drugs, medical devices, cosmetics, pesticides, industrial chemicals.

Unit II: (a) Regulation of water pollutants- EPA, SDWA, DQEn, CPCB, Legal aspects of Water pollution control in India.

(b) Regulation of air pollutants- Clean air act, Air pollution control in India.

Unit III: (a) Regulation of consumer products- consumer product safety commission, FHSA


(b) FDA and EPA testing standards for food, water, pesticides and industrial chemicals. Food, drug and cosmetic Act.

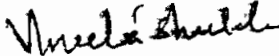
Unit IV: (a) Interagency testing criteria- NTP, EPA, CPSC.

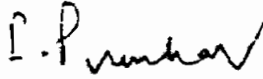
(b) Animal welfare requirements- AWA, CPCSEA, APHIS, Public health service policy, GLP.

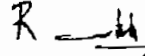
Suggested reading: (Books available in Departmental Library/Central Library)

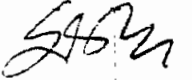
1. Regulatory Toxicology by Renuka Sengupta, Narosa Publishing House, Delhi
2. Fundamental Toxicology by J.H. Duffus and H.G.J. Worth, RSC Publishing
3. Toxicology by Hans Marquardt et al. Academic Press.
4. General and applied Toxicology by Ballantyne, T. Marrs, T. Syversen (Volume-III), Macmillan, UK
5. Food and Nutrition toxicology by Stanley T. Omaye, CRC Press
6. Handbook of Environmental (Laws, Acts, guidelines, compliances and standards) -Volume-2 by R.K. Trivedy, BS Publications, Hyderabad.
7. Handbook of toxicology by M.J. Derelanko and M.A. Hollinger, CRC Press

  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I. Prem Kumar) 09/03/19

  
(S. Raisuddin) 9/3/19

  
(S.V.S. Rana)

  
(Y. Vimala)

**Course 13:**

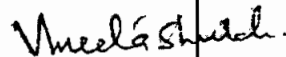
**Tools and Techniques in Toxicology**

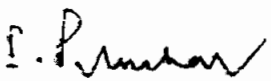
- Unit I** (a) Laboratory animals- Animal environment, Animal husbandry, Animal care & maintenance accreditation  
(b) Histopathology- Fixation, dehydration, clearing, embedding, microtomy and staining methods
- Unit II** (a) Microscopy- Light microscopy, Interference microscopy, Polarization microscopy, Electron microscopy, Confocal microscopy  
(b) Centrifugation- Principles of centrifugation, Types of centrifuges, ultracentrifugation, Applications of centrifugation
- Unit III** (a) Spectrophotometry- Beer-Lambert relationship, Instrumentation, Applications of spectrophotometry, Atomic absorption spectrophotometry  
(b) Chromatography- Adsorption chromatography, thin layer chromatography, Paper chromatography, High performance liquid chromatography (HPLC), Gas- liquid chromatography
- Unit IV** (a) Electrophoresis- Introduction to electrophoresis, Instrumentation, Electrophoresis of proteins, Electrophoresis of enzymes, Isoelectric focusing, Isotachopheresis, Southern, northern & western blotting  
(b) Radiological techniques- Radioimmuno assay (RIA), ELISA- competitive ELISA, indirect ELISA, sandwich ELISA, applications of ELISA

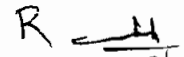
**Suggested reading (Books available in Departmental Library/Central Library)**

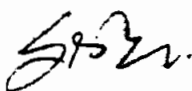
1. Handbook of laboratory Animal Science by Jann Hau, Gerald, L., Van Hoosier., CRC Press
2. Fundamentals of analytical toxicology by R.J. Flanagan, A. Taylor et al., Wiley- Interscience
3. Analytical toxicology for clinical, forensic and pharmaceutical chemists by Brandenberger H., R.A.A. Maes., Walter de Gruyter, NY/London
4. Biotechniques: Theory and Practice by Rana, S.V.S., Rastogi Publications, Meerut

  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I.Prem Kumar) 07/08/19

  
(S.Raisuddin) 9/3/19

  
(S.V.S.Rana)

  
(Y. Vimala)



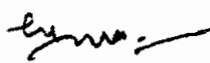
Course 14:


Applied Toxicology

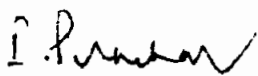
- Unit I (a) Food Toxicology- Toxic ingredients and contaminants of food, Toxicity of dietary supplements, toxins in fish, shell fish and marine food. Analysis of food toxins.  
(b) Cosmetic toxicology- Toxicity of shampoos, conditioners, bleachers, dyes, allergic and respiratory disorders.
- Unit II Medical Toxicology- Mission of medical toxicology, Comparative toxicology, Human risk assessment, Toxicological database
- Unit III Clinical toxicology- Introduction to drug schedule, History of the poisoned patient, physical examination, laboratory evaluation, radiographic examination, Prevention of poison absorption, enhancement of excretion of the poison, Use of antidotes in poisoning.
- Unit IV (a) Veterinary toxicology- Common toxicity in dogs, cats, horses and poultry, by herbicides, house hold chemicals, heavy metals, mycotoxins, blue green algae and toxic plants  
(b) Nanotoxicology-Engineered nanoparticles and their toxicity  
(c) Carrier opportunities in toxicology

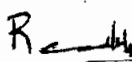
Suggested reading: (Books available in Departmental Library/Central Library)

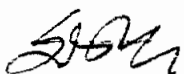
1. Chemical warfare agents, Toxicology and treatment by Timothy C. Marrs, Wiley.
2. Medical Toxicology, by Dart, Richard C, Lippencot Williams and Wilkins.
3. The clinical Toxicology, By RTI international
4. General and applied Toxicology by Ballantyne, T. Marrs, T. Syversen (Volume-II), Macmillan, UK
5. General and applied Toxicology by Ballantyne, T. Marrs, T. Syversen (Volume-III), Macmillan, UK
6. Food and Nutrition toxicology by Stanley T. Omaye, CRC Press


  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I. Prem Kumar) 09/03/19

  
(S. Raisuddin) 9/3/2019

  
(S.V.S. Rana)

  
(Y. Vimhala)

Course 15:

### Forensic Toxicology

Unit I: (a) Historical account of forensic toxicology, Forensic examination of biological fluids, stains and other materials-different blood groups, DNA profiling/figure printing, disputed paternity and maternity.

(b) Blood stains, semen, saliva, urine, faecal matter, milk, hair.

Unit II: (a) Common Household poisons –Mineral acids and caustic alkalis, organic acids (oxalic acid, carbolic acid), vegetable acid poisons (hydrocyanic acid and cyanides)

(b) Specific vegetables poisons-ricinus communis, croton tiglium, abrus precatorius, ergot, capsicum, calotropis, plumbago.

Unit III: (a) Specific animal poisons-cantharides, snakes, scorpions.

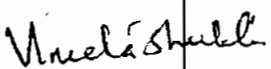
(b) Mechanical poisons – Powdered glass

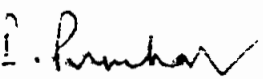
Unit IV: Sedatives and hypnotics (Chloral Hydrate & Barbiturates), organophosphorus compounds (malathion, diazinon), chlorinated compounds (DDT), aluminium phosphide, deliriant poisons (dhatura, cannabis), spinal poisons (strychnos nux vomica), cardiac poisons (nerium odorum, aconite, nicotine, digitalis), asphyxiants (carbon monoxide, carbon dioxide, hydrogen sulphide, war gases)

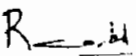
#### Suggested reading (Books available in Departmental Library/Central Library)

1. Principles of Forensic Toxicology, by Levine Barry, AACC Press.
2. The Essentials of forensic medicine and toxicology by Dr. K.S.Narayan and Dr. O.P. Murty., Publisher- J.P.Medical publishers, India
3. Parikh's text book of medical jurisprudence, forensic medicine and toxicology by C.K.Parikh., CBS Publ., New Delhi.
4. Concise text book for medicine and toxicology by R.K.Sharma, Elsevier.
5. Hair analysis in clinical and forensic toxicology by Kintz et al., Elsevier
6. Hair in toxicology: An important Bio-monitor by Tobin Desmond J. RSC Publishing


  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I.Prem Kumar) 01/07/19

  
(S.Raisuddin) 9/2/2019

  
(S.V.S.Rana)

  
(Y. Vimala)

Course 16:

**Experimental Design and Biostatistics**

Unit I: (a) Animal bioassays –LDS, ADI & RfD, NOAEL, related laws and regulations, determination of acute toxicity, sub chronic and chronic toxicity.

(b) Methods in Bioassay- Current trends, use of Daphnia, Zebra fish and other lower animals in toxicological studies.

Unit: II: In vitro toxicology- Concepts of *in vitro* toxicology, methods of *in vitro* toxicology, Cytotoxicity assays (MTT assay, MTS assay, ATP assay, Neutral viability tests). Cell lines used for *in vitro* toxicology, NTP guidelines for *in vitro*, alternative methods in toxicology.

Unit: III: (a) Measures of Central tendency- student 't' test, Z-test.


(b) Probabilities, Hypothesis testing, Chi square test.


Unit IV: Analysis of variance-one way & two way ANOVA, post hoc tests, Duncan's test, William's test.


**Suggested reading: (Books available in Departmental Library/Central Library)**

1. Comprehensive Toxicology. Vol.2. (Toxicological testing and evaluation). Sipes, I.G., McQueen, C.A. and Gandolfi, A.J., Pergamon Press Oxford.
2. General and applied Toxicology by Ballantyne, T. Marrs, T. Syversen (Volume-I), Macmillan, UK
3. Statistical methods in bioinformatics: An Introduction (Statistics for biology and health) by W.J. Ewens and G.R. Grant
4. In vitro Toxicology Systems- Methods in pharmacology and toxicology by Bal-Price, A and Jennigs. P., Humana Press
5. National toxicology program (NTP) 2011. Vision and roadmap for 21<sup>st</sup> century Toxicology.
6. In vitro Toxicology- A volume in methods in toxicology and pharmacology by Alok Dhawan and Seok, S.K., Academic Press, London & New York
7. Fundamental Toxicology by J.H. Duffus and H.G.J. Worth, RSC Publishing
8. Toxicology by Hans Marquardt et al. Academic Press.


  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I. Prem Kumar) 07/08/19

  
(S. Raisuddin) 9/2/2019

  
(S.V.S. Rana)

  
(Y. Vimala)

## Department of Toxicology

### Syllabus of Elective subject under CBCS

All students may be asked to take up one of the open elective as MOOC's of SWAYAM during the 2 year course of PG, which will be treated equally as one of the open electives out of the best 3.

#### Forensic Science- III Semester

**Unit 1-** Definition, History and scope of forensic science. Medicolegal aspects

**Unit 2-** General idea of samples for forensic studies- blood, hair, saliva, urine, semen and milk, post-mortem examination.


**Unit 3-** A brief idea about poisons- Animal poisons, Plant poisons, Metallic and non metallic poisons.

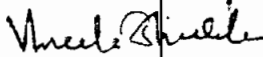
**Unit 4-** Fire arms and injury caused by them. General idea of bombs and explosives.


**Unit 5-** Analytical methods- Microscopy, spectrophotometry, chromatography, electrophoresis and their applications in forensic analysis.

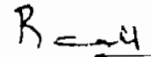
#### **Suggested reading-** (Books available in Departmental Library/Central Library)

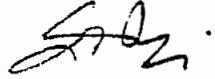
1. The Essentials of forensic medicine and toxicology by Dr. K.S.Narayan and Dr. O.P. Murty., Publisher- J.P. Medical publishers, India
2. Parikh's text book of medical jurisprudence, forensic medicine and toxicology by C.K.Parikh., CBS Publ., New Delhi
3. Concise text book for medicine and toxicology by R.K.Sharma, Elsevier.


  
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(Vineeta Shukla)

  
(I.Prem Kumar) 09/07/19

  
(S.Raisuddin) 9/12/19

  
(S.V.S.Rana)

  
(Y. Vimala)

## Department of Toxicology

### Syllabus of Elective subject under CBCS

All students may be asked to take up one of the open elective as MOOC's of SWAYAM during the 2 year course of PG, which will be treated equally as one of the open electives out of the best 3.

#### Health and Hygiene – II & IV Semester

**Unit 1:** Public and community health- Introductory idea, definition and objective of public and community health. Daily nutritional requirements, Nutritional deficiencies.

**Unit 2:** Environmental and personal hygiene- introduction, importance and components.

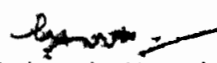
**Unit 3:** Food poisoning and toxins- Types, symptoms, treatment of food poisoning, Food toxins.

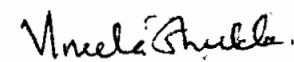
**Unit 4:** Health destroying habits- Pan, Supari, Ganja, drinking, smoking, tea coffee (effects and side effects)

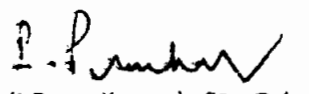
**Unit 5:** Health laws for food safety and hygiene.

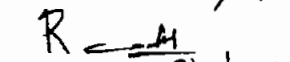
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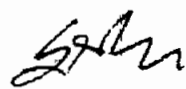
1. Elements of Hygiene and public health by Rai Bahadur Jaisingh P.Modi, Elsevier
2. Introduction to public health by Mary-Jane Schneider, Jones and Barlett learning
3. Fundamental food Microbiology by A.Ray and A.Bhunia, CRC

  
(Yeshvandra Verma)

  
(Vineeta Shukla)

  
(I.Prem Kumar) 09/08/19

  
(S.Raisuddin) 9/2/20

  
(S.V.S.Rana)

  
(Y. Vimala)

# Department of Toxicology

## List of Panel of Subject Experts/Examiners Approved by Board of Studies in Toxicology

1. Prof. S. Raissudin,  
Head, Department of Elementology and Toxicology,  
Jamia Hamdard University,  
Hamdard Nagar, New Delhi.
2. Prof. Vinod Kumar Dumka,  
College of Veterinary Sciences,  
Guru Angad Dev Veterinary and Animal Sciences University,  
Ludhiana (Punjab)
3. Dr. Ratan Singh Ray,  
Indian Institute of Toxicology Research,  
Vishvigyan Bhawan,  
31- M.G. Road,  
Lucknow-226001
4. Prof. R.C. Sharma,  
Department of Environmental Science,  
Hemvati Nandan Bahuguna University,  
Srinagar (Garhwal)- Uttarakhand
5. Prof. N.K. Aggarwal  
Department of Zoology  
HNB Garhwal University campus,  
Badshahi Thol, TEHRI (Uttarakhand)
6. Prof. K.K. Sharma,  
Department of Zoology,  
Jammu University Tawi,  
Canal Road, Jammu
7. Dr. Alok Pandey,  
Scientist -B,  
Indian Institute of Toxicology Research,  
P.B. No- 80, M.G. Road,  
Lucknow- 226001
8. Dr. Inderpal Soni,  
Department of Zoology,  
Rajasthan University,  
Jaipur
9. Prof. Sarvat Sultana,  
Department of Elementology and Toxicology,  
Jamia Hamdard University,  
Hamdard Nagar,  
New Delhi.
10. Dr. Sameer Sharma.  
Department of Biochemistry,  
Lucknow University.  
Lucknow
11. Prof. S.V.S. Rana (Rtd Professor),  
Department of Toxicology  
C.C.S. University,  
Meerut

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12. Dr. Harshit verma,  
Veterinary college,  
Sardar Vallabh Bhai Patel Agriculture University  
Modipuram, Meerut
13. Dr. Haider A. Khan,  
Associate Professor  
Department of Elementology and Toxicology,  
Jamia Hamdard Univeristy,  
Hamdard Nagar, New Delhi Timarpur,  
New Delhi-110006
14. Dr. P.J. John,  
Associate Professor,  
Department of Zoology,  
Rajasthan University,  
Jaipur (Rajasthan)
15. Prof. Vineeta Shukla,  
Department of Zooloogy,  
M.D.University,  
Rohtak (Haryana)
16. Prof. Pradeep Bhatnagar (Rtd)  
Department of Zoology,  
Rajasthan University,  
Jaipur (Rajasthan)
17. Dr. Sudhir Kataria,  
Department of Zoology,  
M.D. University,  
Rohtak (Haryana)
18. Prof. Omkar,  
Department of Zoology,  
Lucknow University,  
Lucknow
19. Dr. Anjali Awasthi,  
Department of Zoology  
Rajasthan University  
Jaipur (Rajasthan)
20. Dr. Nupur Mathur,  
Department of Zoology,  
Rajasthan University,  
Jaipur (Rajasthan)
21. Dr. Sangeeta Rastogi,  
Sc-E/Deputy Director  
institute of Pathology (ICMR),  
Safdarjung Hospital compound, P.B.No- 4909  
Ansari Nagar, New Delhi
22. Dr. Suhel Parvez,  
Department of Elementology and toxicology,  
Jamia Hamdard university,  
Hamdard Nagar, New Delhi.

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23. Dr. I. Prema Kumar  
Scientist-D,  
Institute of Nuclear Medicine and Allied Sciences,  
Lucknow road,  
Timarpur New Delhi-110006
24. Dr. Alok Pandey,  
Indian Institute of Toxicology Research,  
P.O.No- 80, M.G.Road  
Lucknow
25. Dr. I. Prem Kumar  
Scientist  
Institute of Nuclear Medicine and Applied Sciences,  
Lucknow Road , Timarpur,  
New Delhi
26. Dr. Damodar Gupta,  
Institute of Nuclear Medicine and Applied Sciences (INMAAS),  
Lucknow Road, Timarpur,  
New Delhi
27. Dr. Mandeep Kaur,  
Department of oral Medicine and Radiology,  
Faculty of Dentistry,  
Jamia Millia Islamia, New Delhi-25
28. Dr. Yeshvandra Verma, (Internal)  
Department of Toxicology  
C.C.S.University, Meerut

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# Department of Toxicology

## List of Visiting Faculties Approved by Board of Studies in Toxicology

1. Prof. S. Raissudin,  
Head, Department of Elementology and Toxicology,  
Jamia Hamdard University,  
Hamdard Nagar, New Delhi.
2. Prof. Vineeta Shukla,  
Department of Zoology,  
M.D.University,  
Rohtak (Haryana)
3. Prof. Alok Dhawan  
Director,  
Indian Institute of Toxicology Research (CSIR)  
Lucknow
4. Dr. I. Prema Kumar,  
Scientist-F,  
Institute of Nuclear Medicine and Allied Sciences,  
Lucknow road,  
Timarpur New Delhi-110006
5. Dr. Sameer Sharma,  
Department of Biochemistry,  
Lucknow University,  
Lucknow
6. Dr. Amit Marwah,  
Head, Clinical Operations,  
Auriya Research Ltd.  
Manesar (Haryana)

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I. Prema Kumar  
09/03/19

**Board of Studies (Law)**

The Board of studies in the subject LAW has been held on 23.04.2019 at 11 AM in the Committee Hall of Ch. Charan Singh University, Meerut. The following members are present in the meeting -

1. Dr. Rajesh Kumar Garg, Dean faculty of Law, D.A.V. College Muzaffarnagar.
2. Dr. Anjali Mittal, Deptt. Of Law, Meerut College, Meerut - Convener.
3. Dr. Irshad Mohd. Khan, Deptt. Of Law, N.R.E.C. College, Khurja - Member.
4. Dr. Shailendra Kumar Sharma, Deptt of Law, D.A.V. College, Muzaffarnagar - Member.
5. Dr. Pankaj Tyagi, Deptt. Of Law, M.M.H. College, Ghaziabad - Member.
6. Dr. Gopi Chand, Deptt. Of Law, Meerut College, Meerut - Member.
7. Dr. Sunayana Trisal, Deptt. Of Law, M.M.H. College, Ghaziabad - Member.
8. Prof. S.C. Gupta, Dean Law, H.N.B. Garhwal University - Member.
9. Prof. Salim Akhtar, Rtd, Dean Law, AMU Aligarh - Member.
10. Dr. Anurag Deep, Asso. Prof. ILL, New Delhi - Member.
11. Sh. Satya Prakash, Director Deptt. Of Legal studies, CCS University, Meerut - Member.

Dr. Anjali Mittal

Convener.

### Board of Studies (Law) Resolution

In the meeting of the Board of Studies (Law), which was held today on 23<sup>rd</sup> April, 2019 in the committee Hall of CCS University, the following resolutions were Passed unanimously, in the compliance of the notification of CCS University dtd 14/3/2019 No Committee Cell/393 - that

- 1- There shall be internal examinations for 30 marks for each subject in L.L.M in every semester except in Viva-Voce and Dissertation in 4<sup>th</sup> semester.
- 2- There shall be three tests of 10+10+10 marks periodically in every subject during the semester according to the University exam rules. All the question papers should be in printed form and kept in the library of the Department.
- 3- The Student will have to pass both the examinations i.e. internal and external separately.
- 4- The student who secures less then 40% marks cumulatively in all the three tests in the internal examinations will not be eligible to appear in external examination.
- 5- The internal examinations shall be conducted by the qualified and approved faculty only.
- 6- in the self finance institutions the internal examinations shall be conducted under CCTV.
- 7- If a student secures more than 75% marks in any internal examination of any subject, the internal examiner will have to specify the reason for that and that answer book shall be forwarded to a review committee, which will consist ~~of the review committee shall~~ <sup>consist of</sup> three persons headed by the Dean, Faculty of Law and two others as nominated by the Dean Faculty of Law, however at least one member shall be from the Govt. Aided College where L.L.M. Course is being run.
- 8- It was also proposed that in the next meeting of Board of studies the syllabus of L.L.B. (Hons) will be discussed.

*[Signature]*  
 (Dr. Rajesh Kumar Garg)  
 Dean

*[Signature]*  
 (Dr. S.K. Sharma)  
 Member

*[Signature]*  
 (Dr. Sunayana Trisal)  
 Member

*[Signature]*  
 (Dr. Anurag Deep)  
 Member

*[Signature]*  
 (Dr. Anjali Mittal)  
 Convener

*[Signature]*  
 (Dr. Pankaj Tyagi)  
 Member

*[Signature]*  
 (Prof. S.C. Gupta)  
 Member

*[Signature]*  
 (Sh. Satya Prakash)  
 Member

*[Signature]*  
 (Dr. I.M. Khan)  
 Member

*[Signature]*  
 (Dr. Gopal Chand)  
 Member

*[Signature]*  
 (Prof. Salim Akhtar)  
 Member

To be put up in A.C. for retrospective consideration  
 as per notification mentioned.  
 the  
 25/4/19