CENTRAL UNIVERSITY OF PUNJAB

Ph.D. Education

Batch 2023

Department of Education

GRADUATE ATTRIBUTES

The graduates will reflect research from multiple perspectives with creative and innovative thinking and apply it to practical and theoretical challenges they will face in life.

Programme Learning Outcomes

The programme focuses on;

- developing research skills on different advanced aspects of research methodology and application of digital technologies in the field of research and teaching

- analyzing the community related problems and conducting research for their solutions

- developing scientific attitude and global outlook

Course Structure of the Programme

Course Code	Course Title	Course Type	L	T	P	Total
EDU.712	Research Process and Statistics	Core Course	4	0	0	4
UNI.753	Curriculum, Pedagogy and Evaluation	Core Course	1	0	0	1
EDU.751	Research and Publication Ethics	Core Course	2	0	0	2
EDU.707	Computer Applications in Teaching and Research	Skill Based	0	0	4	2
EDU.710	Extension Project	Skill Based	0	0	4	2
EDU.752	Teaching Assistantship	Skill Based	0	0	2	1
EDU.711	International Mentoring	Value added course	0	2	0	2
	Total		**7**	**2**	**10**	**14**

Course Title: RESEARCH PROCESS AND STATISTICS

Course Code: EDU.712

L	T	P	Credits
4	0	0	4

Course Learning Outcomes   **Total Hours: 60**

After completion of the course the students will be able to;
CLO1: Explore the different approaches to research
CLO2: Review the related literature
CLO3: Select appropriate sampling design for different types of research study
CLO4: Construct tools for different types of research
CLO5: Document and disseminate research findings in education
CLO6: Develop competence of analysis through various statistical measures

Units/Hours	Contents	Mapping with CLOs
Unit I **16 Hours**	• Research approaches: Logical positivism, Constructivism • Quantitative and qualitative types of research: their applications according to purpose and method • Descriptive Research: Assessment studies, evaluation studies, ex-post facto studies, replication and meta-analysis. • Experimental research: Developing different Types of experimental research designs. Internal validity and external validity of research **Learning Activities:** group discussion, Mapping the ideas, Brain storming and illustration of Case study	**CLO1**
UNIT II **12 Hours**	• Process to select a problem, Formulating research questions, Hypotheses and review of related literature • Sampling design: Selecting appropriate probability and non-probability sampling techniques for qualitative and quantitative research problems **Learning Activities:** group discussion, Mapping the ideas, Brain storming and illustration of Case study	**CLO2** **CLO3**

UNIT III 16 Hours	•Quantitative research methods and tools: Selection, types and application •Qualitative research methods and tools: Selection, types and application •Mixed Method: Meaning and characteristics, designs and their application •Triangulation: Meaning, designs and their application **Learning Activities:** Group discussion, Mapping the ideas, Brain storming and illustration of Case study	**CLO4** **CLO5**
UNIT IV 16 Hours	•Quantitative Data Analysis: t-test, F-test, chi-square test, ANCOVA, correlation, factor analysis, regression and prediction •Qualitative Data Analysis: Data Reduction, Data Display and Reaching at Conclusions, Content analysis **Learning Activities:** Group discussion, Mapping the ideas, Brain storming and illustration of Case study and Individual presentation	**CLO6**

Suggested Readings

- Adams, K. A., & Lawrence, E. K. (2015). *Research methods, statistics and applications.* Sage Publications.
- Agarwal, Y. P. (2004). Statistical Methods: Concepts, Application and Computation. New Delhi: Sterling Publishers.
- Aiken, L.R., &Marnat, G. G. (2009). *Psychological testing and assessment.* Noida (U.P.): Pearson.
- Anastasi, A., & Urbina, S. (2014). *Psychological testing.* New Delhi: PHI Learning Private Limited.
- Best J.W. (1999). *Research in Education.* New Delhi: Prentice Hall of India Pvt. Ltd.
- Best, J.W., & Kahn, J. W. (2006). *Research in education.* New Delhi: PHI Learning Private Ltd.
- Bogdon, R., &Biklen, S. K. (2008). *Qualitative Research for Education: An Introduction to Theories and Practice.* New Delhi: PHI learning
- Borg, W.R., & Gall, M.D. (1983). *Educational Research – An Introduction.* New York: Longman, Inc.
- Check, J., &Jurs, S. G. (2009). *Research methods in education.* Pearson Publications.

- Creswell, J. W. (2015). *Educational Research: Planning, Conducting and Evaluating Quantitative and qualitative Research.* Boston: Pearson Publications.
- Curtis, W., Murphy, M., &Shields, S. (2013). *Research and Education.* New York & London: Routledge
- EfratEfron, S., &Ravid, R. (2013). *Action Research in Education: A Practical Guide,* New York: Routledge
- Egbert, J., &Sanden, S. (2013). *Foundations of Education Research: Understanding Theoretical Components.* New York: Routledge.
- Fraenkel, J.R., &Wallen, N.E. (1996). *How to Design and Evaluate Research in Education.* New York: McGraw Hill.
- Gall, M. D., Gall, J. P., & Berg, W. R. (2007). *Educational research an introduction.* Pearson Publications.
- Gordon, P. (1996). *A Guide to Educational Research.* New York: Routledge
- Gregory, R. J. (2014). *Psychological testing: History, principles and applications.* New Delhi: Pearson.
- Gupta, S. (2010). *Research methodology and statistical techniques.* New Delhi: Deep & Deep Publications Pvt. Ltd.
- Kilkapatrick, D.L. (2005). *Evaluating training Programmes: The four Levels.* San Francisco: Brrett-Kochler.
- Koul, L. (1984). *Methodology of Educational Research.* New Delhi: Vikas Publications.
- Koul, L. (2009). *Methodology of educational research.* Noida: Vikas Publishing House Pvt. Ltd.
- Kress, T. (2013). *Using Critical Research for Educational and Social Change.* New York & London: Routledge.
- Lauren, B., Little, T. D., & Card, N. A. (2012). *Developmental Research Methods.* New York: The Guilford Press.
- Martella, R. C., Nelson, J. R., Morgan, R. L., &Martella,N. E. (2013). *Understanding and Interpreting Educational Research,* New York: Routledge Guilford Press
- Maykut, P., & Morehouse, R. (1994). *Beginning Qualitative Research- A Philosophic and Practical Guide.* London: The Falmer Press.
- Miller, S. A. (2007). *Developmental Research Methods.* New Delhi: Sage Publications.
- Patton, M.Q. (2002). *Qualitative Research and Evaluation Methods.* C.A: Sage Publications.
- Reynolds, C. R., Livingston, R. B., &Willson, V. (2009). *Measurement and assessment in education.* New Delhi: PHI Learning Private Limited.

Course Title: Curriculum, Pedagogy and Evaluation

L	T	P	Credit
1	0	0	1

Course Code: UNI.753

Course Learning Outcomes (CLO)   **Total Hours: 15**

After completion of the course, scholars shall be able to;
CLO1: Analyze the principles and bases of curriculum design and development
CLO2: Examine the processes involved in curriculum development
CLO3: Develop the skills of adopting innovative pedagogies and conducting students' assessment
CLO4: Develop curriculum of a specific course/programme

Units/Hours	Contents	Mapping with CLOs
Unit I **4 Hours**	• Curriculum: Concept and Principles of curriculum development, Foundations of Curriculum Development. • Types of Curriculum Designs- Subject centered, learner centered, experience centered and core curriculum. Designing local, national, regional and global specific curriculum. • Choice Based Credit System and its implementation. **Learning Activities:** Group discussion	**CLO1** **CLO4**
Unit II **4 Hours**	• Process of Curriculum Development: Formulation of graduate attributes, course/learning outcomes, content selection, organization of content and learning experiences, transaction process. • Comparison among Interdisciplinary, multidisciplinary and trans-disciplinary approaches to curriculum. **Learning Activities:** Preparation and submission of report on the discussed concepts	**CLO2** **CLO4**
Unit III **3 Hours**	• Conceptual understanding of Pedagogy. • Pedagogies: Pedagogy, Cybergogy and Heutagogy with special emphasis on Blended learning, Flipped learning, Dialogue,	**CLO3** **CLO4**

	cooperative and collaborative learning • Three e- techniques: Moodle, Edmodo, Google classroom **Learning Activities:** Preparation and submission of report on the discussed concepts	
Unit IV 4 Hours	• Assessment Preparation: Concept, purpose, and principles of preparing objective and subjective questions. • Conducting Assessment: Modes of conducting assessment – offline and online; use of ICT in conducting assessments. • Evaluation: Formative and Summative assessments, Outcome based assessment, and scoring criteria. **Learning Activities:** Discussion and dialogue on modes of conducting assessment	**CLO3 CLO4**

Transaction Mode

Lecture, dialogue, peer group discussion, seminar

Evaluation criteria

There shall be an end term evaluation of the course for 50 marks for a duration of 2 hours covering all the course learning outcomes (CLOs). The course coordinator shall conduct the evaluation.

Suggested Readings
- Allyn, B., Beane, J. A., Conrad, E. P., & Samuel J. A., (1986). *Curriculum Planning and Development.* Boston: Allyn & Bacon.
- Brady, L. (1995). *Curriculum Development.* Prentice Hall: Delhi. National Council of Educational Research and Training.
- Deng, Z. (2007). Knowing the subject matter of science curriculum, *Journal of Curriculum Studies,* 39(5), 503-535. https://doi.org/10.1080/00220270701305362
- Gronlund, N. E. & Linn, R. L. (2003). *Measurement and Assessment in teaching.* Singapore: Pearson Education
- McNeil, J. D. (1990). *Curriculum: A Comprehensive Introduction,* London: Scott, Foreman/Little
- Nehru, R. S. S. (2015). *Principles of Curriculum.* New Delhi: APH Publishing Corporation.
- Oliva, P. F. (2001). *Developing the curriculum* (Fifth Ed.). New York, NY: Longman

- Stein, J. and Graham, C. (2014). *Essentials for Blended Learning: A Standards-Based Guide.* New York, NY: Routledge.

Web Resources
- https://www.westernsydney.edu.au/__data/assets/pdf_file/0004/467095/Fundamentals_of_Blended_Learning.pdf
- https://www.uhd.edu/academics/university-college/centers-offices/teaching-learning-excellence/Pages/Principles-of-a-Flipped-Classroom.aspx
- http://leerwegdialoog.nl/wp-content/uploads/2018/06/180621-Article-The-Basic-Principles-of-Dialogue-by-Renate-van-der-Veen-and-Olga-Plokhooij.pdf

Course Title: RESEARCH AND PUBLICATION ETHICS

Course Code: EDU.751

L	T	P	Credit
2	0	0	2

Course Learning Outcomes (CLOs)   **Total Hours: 30**

After completion of the course the students will be able to;
CLO1: Demonstrate Intellectual honesty and research integrity
CLO2: Judge publication ethics, authorship and contributor-ship
CLO3: Identify thrust areas of global research and Open access publications and initiatives
CLO4: Analyze Research Metrics

Unit/ Hours	Course content	CLOs
Unit I **3 Hours**	**Philosophy and Ethics** • Introduction to Philosophy: definition, nature and scope, content, branches • Ethics: definition, moral philosophy, nature of moral judgements and reactions	**CLO1**
Unit II **5 Hours**	**Scientific Conduct** • Ethics with respect to science and research • Intellectual honesty and research integrity • Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP) • Redundant publications: duplicate	**CLO2**

	and overlapping publications • Selective reporting and misrepresentation of data	
Unit III **7 Hours**	**Publication ethics** • Publication ethics: definition, introduction and importance • Best practices/ standards setting initiatives and guidelines: Committee on publication Ethics (COPE). Salami Slicing • Conflicts of interest • Publication misconduct: definition, concept, problems that lead to unethical behaviour and vice versa, types • Violation of publication ethics, authorship and contributorship • Identification of publication misconduct, complaints and appeals • Predatory publishers and journals	**CLO2**
Unit IV **4 Hours**	**Open Access Publishing** • Open access publications and initiatives • SHERPA/ROMEO online resource to check publisher copyright & self-archiving policies • Software tool to identify predatory publication developed by SPPU • Journal finder/journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal.	**CLO3**
Unit V **4 Hours**	**Publication Misconduct** • Group Discussions: Subject specific ethical issues, FFP, authorship; conflicts of interest; complaints and appeals: examples and fraud from India and abroad • Software tools: Use of plagiarism software like Turnitin, Urkund and other open source software tools	**CLO1**

Unit VI 7 Hours	**Databases and Research Metrics** • Databases: Indexing databases; Citation database: Web of Science, Scopus etc. • Research Metrics: Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score; Metrics : h-index, i10 index	**CLO4**

Suggested Readings

- Best J.W. (1999). *Research in Education.* New Delhi: Prentice Hall of India Pvt. Ltd.
- Bogdon, R., &Biklen, S. K. (2008). *Qualitative Research for Education: An Introduction to Theories and Practice.* New Delhi: PHI learning
- Borg, W.R., & Gall, M.D. (1983). *Educational Research – An Introduction.* New York: Longman, Inc.
- Chandra, S. S., & Sharma, R.K. (2010). *Research in education.* New Delhi: Atlantic Publishers and Distributors (P) Ltd.
- Creswell, J. W. (2015). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research.* Boston: Pearson Publications.
- Curtis, W., Murphy, M., N Shields, S. (2013). *Research and Education.* New York & London: Routledge
- Gordon, P. (1996). *A Guide to Educational Research.* New York: Routledge
- Kaul, L. (1984). *Methodology of Educational Research.* New Delhi: Vikas Publications.
- Kilkapatrick, D.L. (2005). *Evaluating training Programmes: The four Levels.* San Francisco: Brrett-Kochler.
- Kress, T. (2013). *Using Critical Research for Educational and Social Change.* New York & London: Routledge.
- Lauren, B., Little, T. D., & Card, N. A. (2012). *Developmental Research Methods.* New York: The Guilford Press.
- Martella, R. C., Nelson, J. R., Morgan, R. L., &Martella,N. E. (2013). *Understanding*
- Patton, M.Q. (2002). *Qualitative Research and Evaluation Methods.* C.A: Sage Publications.
- Tolmie, A., McAteer, E., &Muijs, D. (2012). *Quantitative Methods in Educational and Social Research Using SPSS.* Maidenhead: Open University Press
- Wellington, J. (2015). *Educational Research.* New Delhi: Bloomsbury Academic.
- Weirsma. W., & Stephen G. (2009). *Research methods in Education.* New York: Pearson Education

Course Title: COMPUTER APPLICATIONS IN TEACHING AND RESEARCH
Course Code: EDU.707

L	T	P	Credits
0	0	4	2

Course Learning Outcomes   **Total Hours: 60**

After completion of the course the students will be able to;

CLO1: Examine the recent innovations and future perspectives of education technology
CLO2: Develop multimedia presentations
CLO3: Explore web as a teaching-learning resource
CLO4: Appraise security concerns related to interactive content
CLO5: Use appropriate techniques to analyze quantitative and qualitative data
CLO6: Apply e- learning tools in teaching learning, training and research

Unit/ Hours	Course Content	Mapping with CLOs
Unit I **20 hours**	• Knowledge, Organization and sharing tools: social bookmarking, accessing online, databases, journals, browser, sharing/storage (Google drive, etc.), presentations (slide share, You Tube etc.) • ICT Based Learning Processes and Resources: Using the web as a teaching-learning resource. Academic and Research content on the web: Online journals for review of related literature	CLO1, CLO2, CLO3
UNIT II **20 hours**	• Organizer tools: calendars, task manager, planner, Creating links for google meet in calendar (google maps, navigators etc.) • Creating a profile on Academia, Research Gate and Google scholar. Free websites and apps: Creating and sharing of Files in Google Documents and working with Google Forms. • Plagiarism: Concept and Types. Soft wares for checking plagiarism	CLO2, CLO3
UNIT III **10hours**	• Create collage, Google Ed apps, Working in Desktop publisher and Canva. Video conferencing etc. • Creating a Blog and an e-portfolio, Security concerns related to interactive content:	CLO4, CLO6

	Computer Hacking, Cyberbullying and Cybercrimes.	
UNIT IV 10 hours	• Online Learning, online courses and learning management system. Using tools of ICT in classroom- Edmodo, Padlet, Prezi, Socrative, Google classroom, Video cutting and editing tools: Bandicut, Bandicam • Application of SPSS in Educational Statistics	CLO5, CLO6

Evaluation Criteria

Content	Marks
Skill Assessment	50
Viva Voce	20
Practical Record	30
Total	**100**

Suggested Readings

- Allan, B. (2007). Blended learning: Tools for teaching and training. London: Facet Publishing House.
- Ally, M. &Tsinakos, A. (2014). Increasing access through mobile learning. Availableat:http://oasis.col.org/bitstream/handle/11599/558/pub_Mobile%20Learning_web.pdf?sequence=4&isAllowed=y
- Antoninis, M., & Montoya, S. (2018). *A global framework to measure digital literacy*. UIS, UNESCO. Available at: http://uis.unesco.org/
- Azoulay, A. (2018). Making the most of artificial intelligence. *The UNESCO Courier*, 3.
- Bali, M. (2017). Against the 3A's of EdTech: AI, analytics, and adaptive technologies in Education. *The Chronicle of Higher Education.* Available at: https://www.chronicle.com/ blogs/profhacker/against-the-3as-of-edtechai-analytics-and-adaptive-technologies-ineducation/64604
- Bansal, C., &Misra, P. K. (2018). Implications of Korean Experiences of ICT in Education in Indian Context: A Viewpoint. *I-manager's Journal of Educational Technology*, *14*(4), 61-70.
- Beardsley, S., Enriquez, L., Bonini, S., Sandoval, S., &Brun, N. (2010). Fostering the Economic and Social Benefits of ICT. Global Information Technology Report, World Economic Forum 2010. Available at: https://cncpanama.org/phocadownload/Global%20Information%20Technology%20Report%202009-2010.pdf

- Encyclopedia Britannica. (2020). Artificial intelligence. Available at: https://www.britannica.com/technology/artificial-intelligence
- Fadel, C., Holmes W., Bialik M. (2019). Artificial intelligence in Education: Promises and implications for teaching and learning.
- Holmes,W., Bialik,M., &Fadel, C. (2019). Artificial intelligence in education promises and implications for teaching and learning. Boston, MA: The Center for Curriculum Redesign. Available at: https://curriculumredesign.org/wp-content/uploads/AIED-Book-Excerpt-CCR.pdf
- Laanpere, M., Pata, K., Normak, P. &Põldoja, H. (2014). Pedagogy-driven design of digital learning ecosystems. *Computer Science and Information Systems*, 11(1),419–442.
- Lesgold, A.M. (2019). Learning for the age of artificial Intelligence: Eight education competences. Routledge: New York.
- Management Association, Information Resources. (2017). Blended learning: Concepts, methodologies, tools, and applications. US: IGI Global.
- Marolla, C. (2019). Information and communication technology for sustainable development. US: Taylor & Francis.
- Nye, B.D. (2015). Intelligent tutoring systems by and for the developing World: a review of trends and approaches for educational technology in a global context. International Journal of Artificial Intelligence in Education, 25(2), 177-203.
- OECD. (2019). Artificial intelligence in society. Paris: OECD Publishing. Available at: https://ec.europa.eu/jrc/communities/sites/jrccties/files/eedfee77-en.pdf
- Roll, I., & Wylie, R. (2016). Evolution and revolution in artificial intelligence in education. *International Journal of Artificial Intelligence in Education*, 26 (2), 582-599.
- Sammons, J., &Cross, M. (2017). The basics of cyber safety: Computer and mobile device safety made easy. US: Elsevier Inc.
- Stanford Encyclopedia of Philosophy. (2020). Artificial intelligence. Available at: https://plato.stanford.edu/entries/artificial-intelligence/
- UNESCO. (2018). UNESCO ICT competency framework for teachers. Available at : https://unesdoc.unesco.org/ark:/48223/pf0000265721
- Zhadko, O. &Ko, S. (2020). Best practices in designing courses with open educational resources. New York: Routledge.
- Zimmerman, M.R.(2018). *Teaching AI: Exploring new frontiers for learning*. Portland, Oregon: International Society for Technology in Education

Course Title: EXTENSION PROJECT

Course Code: EDU.710

L	T	P	Credit
0	0	4	2

The course aims at identifying local needs and issues involving research to solve problems for making a contribution to the local community.

Course Learning Outcomes

On successful completion of this course, students will be able to;

CLO1: Establish a link between the community and profession
CLO2: Identify community needs, issues and aspirations
CLO3: Analyse and suggest solutions to problems of community
CLO4: Make a contribution of their professional learning to the society

Course Content

- Identification of problem (within 4 weeks)
- Submission of research proposal (5th -8th week)
- Submission of research report (last week of semester)
- Presentation of work
- Submission of Paper for Publication

Evaluation Criteria

Content	Marks
Project proposal	20
Project work report	50
Submission of paper for publication	10
Viva Voce	20
Total	**100**

Course Title: TEACHING ASSISTANTSHIP

L	T	P	Credit
0	0	2	1

Course Code: EDU.752   **Total Hours: 30**

Course Learning Outcomes

At the end of this skill development course, the scholars shall be able to;

CLO1: familiarize themselves with the pedagogical practices of effective classroom delivery and knowledge evaluation system

CLO2: manage large and small classes using appropriate pedagogical techniques for different types of content

Activities:

- The scholars shall attend Master degree classes of his/her supervisor to observe the various transaction modes that the supervisor follows in the classroom delivery or transaction process one period per week.

- The scholars shall be assigned one period per week under the direct supervision of his/her supervisor to teach the Master degree students adopting appropriate teaching strategy(s).

- The scholars shall be involved in the examination and evaluation system of the Master degree students such as preparation of questions, conduct of examination and preparation of results under the direction of the supervisor.

Evaluation:

- At the end of the semester, the supervisor shall conduct an examination of teaching skills learned by the scholar as per the following **evaluation criteria**:

  - The scholars shall be given a topic relevant to the Master degree course of the current semester as his/her specialization to prepare lessons and deliver in the classroom before the master degree students for one hour (45 minutes teaching + 15 minutes' interaction).

- The scholars shall be evaluated for a total of 50 marks comprising *content knowledge* (10 marks), *explanation and demonstration skills* (10 marks), *communication skills* (10 marks), *teaching techniques employed* (10 marks), and classroom interactions (10).

Course Title: INTERNATIONAL MENTORING

L	T	P	Credits
0	2	0	2

Course Code: EDU.711   **30 hours**

The course aims at providing international exposure on various areas, methods and recent trends in educational research

Course Learning Outcomes

After completion of the course the students will be able to
CLO1: Establish a link with international learning community for developing global vision
CLO2: Identify thrust areas of global research
CLO3: Analyze and suggest solutions of global issues

Units/Hours	Contents	Mapping with CLOs
Unit I 15 hours	• Virtual session/face to face with international experts/ students on various research areas	CLO 1, CLO 2, CLO 3
Unit II 15 hours	• To explore thrust areas of global research and suggest innovative solutions to various global level problems.	CLO 1, CLO 2, CLO 3

Evaluation criteria

E-assessment (Report writing) - 50 marks