

FACULTY OF EDUCATION

Syllabus for the Batch from Year 2025 to Year 2026

FOR

**Post Graduate Diploma in Computer
Application (Teacher Education)**

(Credit Based Grading System)

(Semester I–II)

Examinations: 2025–26



**GURU NANAK DEV UNIVERSITY
AMRITSAR**

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Post Graduate Diploma in Computer Application (Teacher Education) (CBGS)
(Syllabus for the Batch from Year 2025 to Year 2026)

SCHEME OF COURSE

SEMESTER-I

PAPER	SUBJECT	L	T	P	Total Credits
PTE01001T	Fundamentals of Computer and Operating System (Theory)	2	0	0	4
PTE01002L	Fundamentals of Computer and Operating System (Theory Based Practical)	0	0	2	
PTE01003T	MS-Office/FOSS (Theory)	2	0	0	4
PTE01004L	MS-Office/FOSS (Theory Based Practical)	0	0	2	
PTE01005T	Web Designing and Web Security (Theory)	2	0	0	4
PTE01006L	Web Designing and Web Security (Theory Based Practical)	0	0	2	
PTE01007T	Python Programming (Theory)	2	0	0	4
PTE01008L	Python Programming (Theory Based Practical)	0	0	2	
PTE01009L	Contemporary India and Education	4	0	0	4
Total					20

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SEMESTER-II

PAPER	SUBJECT	L	T	P	Total Credits
PTE02001T	ICT in Teaching (Theory)	2	0	0	4
PTE02002L	ICT in Teaching (Theory Based Practical)	0	0	2	
PTE02003T	Database Management System, System Analysis & Design (Theory)	2	0	0	4
PTE02004L	Database Management System, System Analysis & Design (Theory Based Practical)	0	0	2	
PTE02005T	Academic Writing	2	0	0	2
PTE02006T	Universal Human Values	2	0	0	2
PTE02007L	Project Report	0	0	4	4
PTE02008T	Learning and Teaching	4	0	0	4
Total					20
Grand Total= (20+20=40 Credits)					

SEMESTER-I

PTE01001T: FUNDAMENTALS OF COMPUTER AND OPERATING SYSTEM (THEORY)

Time: 3 Hours

Credits: L-T-P

2-0-0

Theory Marks: 50

Instructions for Examiners/Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions. Select at least one question from each section. The fifth question may be attempted from any section.

The students can use only non-programmable and non-storage type calculator.

COURSE OBJECTIVES

On completion of this course, the students will be able to:

- Acquire the knowledge about computer, applications, and components
- Understand the meaning, functions and types of operating system.
- Gain knowledge on various kinds of software, their types, programming languages and virus and their different types.
- Understand the concept, features, functions and types of learning management system
- Develop an understanding of the concepts, importance, tools and applications of G-suite.
- Understanding the concept of Google form, types, procedure and applications.

SECTION-A

Fundamentals of Computer: Introduction to Computer, Applications of Computer, Components of Computers, Input-Output Devices (Keyboard, Mouse, Track Ball, Light Pen, Cards, Printers, Plotters, Scanners), Secondary Storage Devices (Floppy Disk, Magnetic Disk, Winchester Disk, Optical Disk).

Problem Analysis: Flowcharts, Algorithms, Decision tables. Types of Software, Translators (Compiler, Interpreter, Assembler), Introduction to Data Communication and Computer Network-LAN, MAN, WAN. Number System- (Binary, Octal, Hexadecimal), Computer Arithmetic (Addition, Subtraction, Multiplication, Division).

SEMESTER-I

SECTION-B

OPERATING SYSTEM

Introduction: Definition of The Operating System, Functions of An Operating System, Different Types Of Systems - Simple Batch System, Multi-Programmed Batched System, Time Sharing System, Personal Computer Systems, Parallel Systems, Distributed Systems, Real Time Systems
Functional overview of an operating system Windows, Linux/ UNIX. Its functions and applications, System management using Linux, Mint, UBUNTU, CentOS operating systems.

SEMESTER-I

SECTION-C

Software and its Need, Types of Software - System software, Application software, Programming languages- Machine, Assembly, High Level, 4GL, their merits and demerits, Virus working principles, Types of viruses, virus detection and prevention, viruses on network.
Disk Operating System: Define DOS, Structure of MS-DOS (Description of Booting Files, Steps to Boot the System), Hot & Cold Booting, Internal Command.

SECTION-D

LMS (LEARNING MANAGEMENT SYSTEM) -Meaning, Features, functions, components, types, benefits of a learning management system, advantages and disadvantages, Best Learning Management System, Google Classroom.

G-suite- Meaning, features and importance, application of G-suite in the field of education, Primary g-suite tools- (Gmail, Docs, Drive, Sheets, Slides, Forms, Calendar, Google+, Sites, Hangouts and Keep), Google form. Use of Online Learning Tools (Zoom, Google Meet),

REFERENCES:-

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- Deitel, H.M. (1984). *An Introduction To Operating System*. Delhi, Addison Wesley Publishing Company.
- Osman, A.A. (2010). *Learning Management Systems*. LAP Lambert Academic Publishing
- Silberschatz, G. (1989). *Operating System Concepts*. Delhi, Addison Wesley Publishing Company.
- Sinha, P & Sinha, P. (2021). Computer Fundamentals. New Delhi, BPB Publications.
- Tanenbaum, A.S., (1995). *Modern Operating System*. Delhi, Prentice Hall of India Pvt. Ltd.
- <https://www.geeksforgeeks.org/introduction-of-operating-system-set-1/>
- <https://www.techtarget.com/searchcio/definition/learning-management-system>
- <https://www.docebo.com/learning-network/blog/what-is-learning-management-system/>
- <https://360learning.com/blog/what-are-learning-management-systems-lms/>
- <https://www.softwaretestinghelp.com/learning-management-system>

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SEMESTER-I

**PTE01002L: FUNDAMENTALS OF COMPUTER AND OPERATING SYSTEM
(THEORY BASED PRACTICAL)**

Credits: L-T-P

0-0-2

Practical Marks: 50

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SEMESTER-I

**PTE01003T: MS-OFFICE/FOSS
(THEORY)**

Time: 3 Hours

**Credits: L-T-P
2-0-0
Theory Marks: 50**

Instructions for Examiners/Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions. Select at least one question from each section. The fifth question may be attempted from any section.

The students can use only non-programmable and non-storage type calculator.

COURSE OBJECTIVES

On completion of this course, the students will be able to:

- Acquire knowledge about MS office, open office and libre office.
- Understanding the concept of FOSS, their procedure and applications.
- Acquire knowledge about libre office's features and components.

SECTION-A

MS-WORD: File handling, Editing, Formatting, spell checking, Mail merge & Table handling & Insertion, importing, exporting & object linking embedding, printing operation. Spreadsheet: features, uses & benefits in general.

MS-Excel: Entering data & selecting cells, editing worksheet data, formatting worksheet, creating Formulae, function & charts /graphs, multi operation, data base management. Presentation Tools: features, uses & benefits in general.

SECTION-B

MS Power Point: Creating & saving presentation templates & view (slide view, notes view, outline view, slide show) Formatting text, slides & graphs, animations, slides transition, multi operation.

MS-Access: Introduction, Designing a Database, Creating a New Database, Import and Export Data, Creating a Table Manage Tables. Create a Table Relationship, Managing data in Table, Joining Tables, Querying a Database, Creating Flexible Queries, Controlling data entry, Designing Forms, Improving Forms, Working with a Report, Customizing Reports, Sharing data cross Applications.

SEMESTER-I

SECTION-C

ORIENTATION TO FREE OPEN SOURCES

Introduction, Meaning, Concept, and need of FOSS (free and open-source software), the difference between free and open source, features, categories open free source, usage of free and open source, Procedures in use of opensource software comparing with proprietary software. Utility of application software under open source.

Free and open-source software-Types and list of free and open-source software (FOSS)- Mozilla Firefox, LibreOffice, GIMP, VLC Media Player, Linux, Blender, GNU Compiler Collection, Python, PHP, Shortcut.

SECTION-D

Libre office- Meaning, features, components- Writer, Calc, Impress, Draw, Base, Math, Advantages of libre office, minimum requirements for libre office.

Hyperlinks-Meaning, functions and advantages, Steps to create hyperlinks for- text, images, in Gmail. Correct HTML for creating a hyperlink, HTML tags, and the difference between attributes and Html tags.

REFERENCES:-

- https://en.wikipedia.org/wiki/Free_and_open-source_software
- <https://www.libreoffice.org/discover/libreoffice/>
- <https://www.simplilearn.com/top-open-source-technologies-to-master-article>
- <https://documentation.libreoffice.org/assets/Uploads/Documentation/en/GS5.0/PDF/GS5001-IntroducingLibreOffice.pdf>
- Kumar, B. (2017). *Microsoft Word 21*. Delhi, V&S Publishers.
- Kumar, B. (2017). *Mastering MS Office*. Delhi, V&S Publishers.
- Patel, Y. (2016). *Ms Powerpoint*. Delhi, V&S Publishers.
- Taxali, R.K. (2002). *PC Software for Windows 98*. New Delhi, Tata McGraw-Hill Publishing Company Ltd.
- Srivastava, S.S. (2008). *MS-OFFICE*. New Delhi, Laxmi Publications.

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SEMESTER-I

**PTE01004L: MS-OFFICE/FOSS
(THEORY BASED PRACTICAL)**

Credits: L-T-P

0-0-2

Practical Marks: 50

SEMESTER-I

PTE01005T: WEB DESIGNING AND WEB SECURITY (THEORY)

Time: 3 Hours

Credits: L-T-P

2-0-0

Theory Marks: 50

Instructions for Examiners/Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions. Select at least one question from each section. The fifth question may be attempted from any section.

The students can use only non-programmable and non-storage type calculator.

COURSE OBJECTIVES

On completion of this course, the students will be able to:

- Understanding the concept of internet, web browser and protocols.
- Gain knowledge about themes, forms and web page designing.
- Understand the concept, threats of internet security and different types of internet attacks.
- Develop an understanding of the meaning, types, needs and benefits of firewalls.
- Understanding the concept of digital signature, usage and procedures to create digital signature.
- Acquire knowledge about copy right issues, types, limitations and protection measures.
- To know about cryptography, types and importance.
- Understand the concept cybercrime, cyber ethics and cyber laws.

SECTION-A

Introduction to Internet, Web Browser, Protocols – TCP/IP, FTP, POP3, SMTP

Hardware / Software Requirements. Client/ Server Model, URL, E-Mail, Introduction to HTML, DHTML

Themes: Creating your own theme, selecting a color scheme, selecting graphics, Selecting text, Normal page, Confirmation page, Feedback form, Guest book, One-column body, Search page, Two-column body, Three-column body.

SECTION-B

Forms: Creating form using wizard, adding text boxes, adding radio buttons, adding check box, adding drop-down menus, Adding pushbutton & pictures.

Web Page Designing: Adding shared borders to the page, giving title to a page, selecting a background for page, adding text to page, Hyperlink, turning text to heading, adding picture to the page, adding a clipart, adding navigation bars, publishing your web page, making your web page searchable.

SEMESTER-I

SECTION-C

Internet security- Meaning and Definition, internet security threats and different types of internet attacks:- Wi-fi threats, e-mail threats, software and Protection methods from these internet threats. Firewalls- concept, meaning, types, need and benefits.

Digital signature-Meaning, usage and how to create a digital signature

SECTION-D

Copy right issue- Meaning, different types, limitations and ways to resolve these copyright issue.

Cryptography- Meaning, definition, importance, Principles, types of cryptography.

Cyber ethics and cyber-crime, Cyber-law-Meaning, Features, types, needs and importance of cyber law in India,

REFERENCES:-

- Cheswick, W.S., Bellovin, S.M., & Rubin, A.D. (2003). *Firewalls and Internet Security*. New Delhi, Addison-Wesley Publishers.
- Jain, S., Rai, A.K., & Geetha, M. (2015). *Web Designing and Development*. New Delhi, BPB publisher.
- Jain, S. & Iyer, G. (2020). *Web Designing and Publishing*. New Delhi, BPB Publications.
- Kumar, P. (2021). *Web Design With HTML & CSS: HTML & CSS Complete Beginner's Guide*. Chennai, Tamil Nadu, Notion Press.
- <https://www.kaspersky.com/resource-center/definitions/what-is-internet-security>
- <https://www.geeksforgeeks.org/cryptography-and-its-types/>
- <https://www.fortinet.com/resources/cyberglossary/what-is-cryptography>
- <https://www.csoonline.com/article/3583976/what-is-cryptography-how-algorithms-keep-information-secret-and-safe.html>
- <https://www.geeksforgeeks.org/what-is-cyberethics/>
- <https://blog.teachmint.com/the-national-repository-of-open-educational-resources/>
- <https://www.myadvo.in/blog/what-is-the-cyber-law-in-india/>
- <https://www.semrush.com/blog/html-tags-list/>

SEMESTER-I

**PTE01006L: WEB DESIGNING AND WEB SECURITY
(THEORY BASED PRACTICAL)**

Credits: L-T-P

0-0-2

Practical Marks: 50

SEMESTER-I

PTE01007T: PYTHON PROGRAMMING (THEORY)

Time: 3 Hours

Credits: L-T-P

2-0-0

Theory Marks: 50

Instructions for Examiners/Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions. Select at least one question from each section. The fifth question may be attempted from any section.

The students can use only non-programmable and non-storage type calculator.

COURSE OBJECTIVES

On completion of this course, the students will be able to:

- Understand the meaning of python, usage of python programming language, applications and python for software development.
- Gain knowledge on List, Ranges & Tuples in Python
- Acquire knowledge about Python Dictionaries and Sets, inputs and outputs in python.
- Develop the understanding on the concept of Python Object Oriented and Python Multithreaded Programming.

SECTION-A

Introduction to Python-What is Python, Uses of Python Programming Language / Python Applications, Python for Software development, Python for Networking, Python for Automated Testing, Features of Python Programming Language, Implementations of Python, and Python career opportunities.

Control, Flow, Loops-Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (if-elif-else); Iteration: while, for, break, continue.

SECTION-B

List, Ranges & Tuples in Python-Introduction Lists in Python More About Lists Understanding Iterators Generators, Comprehensions and Lambda Expressions Introduction Generators and Yield Next and Ranges Understanding and using Ranges More About Ranges Ordered Sets with tuples

SEMESTER-I

SECTION-C

Python Dictionaries and Sets: Introduction to the section Python Dictionaries More on Dictionaries Sets Python Sets Examples

Input and Output in Python Reading and writing text files writing Text Files Appending to Files and Challenge Writing Binary Files Manually Using Pickle to Write Binary Files

SECTION-D

Python Object Oriented -Overview of OOP, Creating Classes and Objects Accessing attributes, Built-In Class Attributes, Destroying Objects

Python Multithreaded Programming-What is multithreading? Starting a New Thread, The Threading Module, Synchronizing Threads, Multithreaded Priority Queue

REFERENCES:-

- Allen B. Downey, (2016). *Think Python: How to Think Like a Computer Scientist*, 2nd edition, Shroff / O'Reilly Publishers.
- Cole, S.J. (2015). *Python Programming*. Washington, KDL Publishing
- Rajkumar, K.V., Krishna, S.J., & Prakash, M (2021). *Basic Python Programming for Beginners*. Daryaganj Delhi, Blue rose Publishers Pvt. Ltd.
- Thareja, R. (2017). *Python Programming: using problem solving approach*. Oxford University Press.
- https://www.w3schools.com/python/python_intro.asp
- <https://www.programiz.com/python-programming>
- https://mrcet.com/downloads/digital_notes/CSE/III%20Year/PYTHON%20PROGRAMMING%20NOTES.pdf

SEMESTER-I

**PTE01008L: PYTHON PROGRAMMING
(THEORY BASED PRACTICAL)**

Credits: L-T-P

0-0-2

Practical Marks: 50

SEMESTER-I

PTE01009L: CONTEMPORARY INDIA AND EDUCATION

Time: 3 Hours

Credits: 4
Total Marks: 100

Instructions for Examiners/Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions. Select at least one question from each section. The fifth question may be attempted from any section.

COURSE OBJECTIVES:

The course will enable the student teachers to -

- Appreciate the unity and strengths of Indian diversities based on region, religion, gender, languages, socio-economic factors like caste, means of livelihood etc.
- Acquire knowledge about the salient features of our Constitution and constitutional measures to protect diversities
- Develop understanding of the issues in contemporary India like industrialization, urbanization, globalization, modernization, economic liberalization and digitalization etc.
- Appraise about the policy initiatives taken in education reform during pre- and post Independent India.

SECTION-A

Contemporary India: Social Stratification-forms and function; caste and class; region and religion; Types of Society-tribal, Agrarian; industrial, post industrial society; Educational scenario of India: diversity in terms of educational opportunities religion, caste, class, gender, language, region and tribes, Role of education in creating positive attitude towards diversity
Impact of Urbanisation; Industrialisation; Globalization, modernization, economic liberalization and digitalization etc, Population explosion and educational challenge: Population size; composition and distribution in India; consequences of population growth

SECTION-B

Constitutional Provisions and Education: Constitutional provisions on education that reflect National ideals: Democracy and the values of equality, justice, freedom, concern for others' wellbeing, secularism, respect for human dignity and rights.

India as an evolving Nation: Vision, Nature and Salient

Features, Fundamental Rights & Duties of Citizens, Constitutional interventions for universalization of education and RTE Act 2009, Decentralization of Education and Panchayati Raj (specifically through 73rd and 74th amendment)

SEMESTER-I

SECTION-C

Policy Framework for Development of Education in India: Overview of educational reform in the Pre-independence period- Macaulay's minutes, Wood & Despatch, Hunter Commissions; Sargent Report,

Education in Post-Independence Period: Mudaliar Commission (1952) Education Commission (1964-66); NPE 1968; NPE 1986 and its modified version 1992; Knowledge Commission and NPE (2020): Emerging trends in the interface between political process and education; economic developments and education; and Socio-cultural changes and education.

SECTION-D

Initiatives of the Government of India: Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA), Mid-day Meal, Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT)

Contemporary Indian Education: Concerns and Issues: Challenges in Implementation of RTE Act 2009, Right to Education and Universal Access: Issues of a) Universal enrolment b) Universal retention c) Universal success, Equality of Educational Opportunity: Meaning of equality and constitutional provisions

References:-

- Anand, C.L. et.al. (1983). Teacher and Education in Emerging in Indian Society, NCERT, New Delhi.
- Govt. of India (1986). National Policy on Education, Min. of HRD, New Delhi. Govt. of India (1992). Programme of Action (NPE). Min of HRD.
- Govinda, R. (2011). *Who goes to school?: Exploring exclusion in Indian education*. Oxford University Press.
- Krishnamurti, J. (1992). Education and world peace. In *Social responsibility*. Krishnamurti Foundation.
- Kumar, K. (2013). *Politics of education in colonial India*. India: Routledge.
- Mani, R.S. (1964). Educational Ideas and Ideals of Gandhi and Tagore, New Book Society, New Delhi.
- Manoj Das (1999). Sri Aurobindo on Education, National Council for Teacher Education, New Delhi.
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- Mukherji, S.M., (1966). History of Education in India, Acharya Book Depot, Baroda.
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- NCERT (1986). *School Education in India – Present Status and Future Needs*, New Delhi.
- NCERT. (2005). *National curriculum framework. (NCF 2005)*. New Delhi: NCERT.
- NCERT. (2006a). *Position paper-National focus group on education with special needs*
- NCERT. (2006b). *Position paper-National focus group on gender issues in the curriculum (NCF 2005)*. NCERT.
- NCERT. (2006c). *Position paper-National focus group on problems of scheduled caste and scheduled tribe children (NCF 2005)*. New Delhi: NCERT.
- NCERT. (2006d). *Position paper-National focus group on teaching of Indian language*
- Ozial, A.O. 'Hand Book of School Administration and Management', London, Macmillan.
- Radha Kumud Mookerji. *Ancient Indian Education (Brahmanical and Buddhist)*, Cosmo Publications, New Delhi – 1999.
- Sainath P. (1996). *Everybody loves a good drought*. Penguin Books New Delhi.
- Salamatullah, (1979). *Education in Social context*, NCERT, New Delhi.
- Sykes, Marjorie (1988): *The Story of Nai Talim*, Naitalim Samiti: Wardha.
- UNESCO; (1997). *Learning the Treasure Within*.
- Dr. Vada Mitra (1967). *Education in Ancient India*, Arya book Depot, New Delhi
- UNDP. *Human Development Reports*. New Delhi. Oxford: Oxford University Press.
- UNESCO. (2004) *Education for All: The Quality Imperative*. EFA Global Monitoring Report, Paris.

SEMESTER-II**PTE02001T: ICT IN TEACHING
(THEORY)****Time: 3 Hours****Credits: L-T-P
2-0-0
Theory Marks: 50****Instructions for Examiners/Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions. Select at least one question from each section. The fifth question may be attempted from any section.

The students can use only non-programmable and non-storage type calculator.

COURSE OBJECTIVES

On completion of this course, the students will be able to:

- Understand the meaning of asynchronous and synchronous learning.
- Develop the understanding on the concept of pedagogical to e-learning.
- Acquire knowledge on ICT, importance and approaches in pedagogies.
- Develop the understanding on the teaching-learning environment and modes of using in Teaching learning environment.
- Gain the knowledge about digital initiatives taken by government in India for Technology Integration in Education.
- Understand the concept, stages, steps, advantages, security and safety of online transaction.

SECTION-A

Asynchronous learning- Meaning, methods, importance and benefits. Tools for asynchronous Moodle and Edmodo Basics – Podcasts, wikis and reflection blogs as Teaching Learning methodologies.

Technology Integration: Recent Trends a) Emerging Trends in e learning: Social learning (concept, use of web 2.0 tools for learning, social networking sites, blogs, chats, video conferencing, discussion forum)

Synchronous learning- Meaning, methods, importance and benefits. Tools for synchronous Chat, skype, social networking sites- Meaning, advantages, disadvantages and uses.

SEMESTER-II

SECTION-B

Pedagogical Approaches to E-Learning, E-Learning Technologies, e- library and web 2.0 technology

Collaboration Authoring Tools (eXe-Learning, Xerte), Media Server, Tools for Creating E-Learning Contents- Course Authoring Tools (Web CT, Moodle)

SECTION-C

ICT based pedagogies- Information Communication Technology- Concepts, Objectives and role and importance of ICT in pedagogy.

Teaching-learning environment- Meaning, Types of Teaching-Learning Environments-Face-to-face teaching-learning environment, Networked teaching-learning environment, Open and distance teaching-learning environment, Virtual teaching-learning environment Modes of Using ICTs in Teaching-Learning Environments, Features of an ICT Mediated Teaching-Learning Environment

SECTION-D

Digital Initiatives of Government of India for Technology Integration in Education: SWAYAM, SUGAMAYA, PUSAKALAYA, SHALA SIDDHI, SHALA DARPAN, SARANSH, E-pathshala, NROER (The National Repository of Open Educational Resources)-Concept, Meaning, mission, objectives, and features.

Online transaction/e-transaction- Meaning, stages, steps, advantages, security and safety of online transaction.

REFERENCES:-

- Apter, Michel, J. (1968). *The New Technology of Education*. London, MacMillan.
- Bhatia, K.K. & Sidhu, H.S. (1994). *Foundations of Teaching Learning Process*. Ludhiana, Tandon Publication.
- Bhushan, A. and Ahuja, M. (1992). *Educational Technology*. Patiala, Bawa Publishers.
- Chauhan, S.S. (1978). *A Textbook of Programmed Instruction*. New Delhi, Sterling.
- Mukhopadhyay, M. (1990): *Educational Technology – Year Book 1988*, All India Association for Educational Technology, New Delhi.
- Mukhopadhyay, M. (1990): *Educational Technology – Challenging Issues*, New Delhi, Sterling Publishers Pvt. Ltd.
- Parmaji, S. (1994). *Distance Education*, New Delhi, Sterling Publishers.
- Rana, S. (1994). *Open Learning in India*. New Delhi, Commonwealth Publishers.
- Sampathet. al. (1981): *Introduction to Educational Technology*. New Delhi, Sterling Publishers Pvt. Ltd.
- https://www.angelo.edu/faculty-and-staff/instructional-design/online-teaching/section_31.php
- <https://www.toppr.com/guides/business-studies/emerging-modes-of-business/online-transactions-and-security-of-e-transactions/>
- <https://egyankosh.ac.in/bitstream/123456789/46317/1/BESE-135B3E.pdf>

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SEMESTER-II

**PTE02002L: ICT IN TEACHING
(THEORY BASED PRACTICAL)**

Credits: L-T-P

0-0-2

Practical Marks: 50

SEMESTER-II

PTE02003T: DATABASE MANAGEMENT SYSTEM, SYSTEM ANALYSIS & DESIGN (THEORY)

Time: 3 Hours

Credits: L-T-P

2-0-0

Theory Marks: 50

Instructions for Examiners/Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions. Select at least one question from each section. The fifth question may be attempted from any section.

The students can use only non-programmable and non-storage type calculator.

COURSE OBJECTIVES

On completion of this course, the students will be able to:

- Understand the basic concept of database management, system analysis and design.
- Develop the understanding on the concept of rational model.
- Acquire knowledge on ORACLE and PL/SQL

SECTION-A

Basic Concepts: An overview of database Management, (database, database system, why database, data independence). An architecture for a database system (levels of the architecture, mapping, DBA), Introduction to Relational database systems.

System Analysis and Design: System development life cycle, System Development Tools.

SECTION-B

Relational Model: Domain and relations, Relational data integrity, relational algebra, relational calculus and SQL languages, Normalization concept – 1NF, 2NF, 3NF, 4NF, Boyce-Codd Normal Forms.

SECTION-C

ORACLE 8: SQL *PLUS

Introduction to Oracle 8, SQL – DDL, DML, DCL, Join methods & Sub query, Union, Intersection, Minus, Tree Walking, Built in Functions, Views, Security amongst users, Sequences, Indexing Object Oriented, Features of Oracle 8.0

SECTION-D

PL/SQL: Introduction to PL/SQL, Cursors-Implicit & Explicit, Procedures, Functions & Packages, Database Triggers

SEMESTER-II

REFERENCES:-

- Bayross, S. (2010). *SQL, PL/SQL the Programming Language of Oracle*. New Delhi, BPB Publisher.
- Date, C.J. (1999). *An Introduction of Database system*. Noida, Uttar Pradesh, Pearson.
- Mata-Toledo, R.A., & Cushman, P.k. (2006). *Database Management Systems*. Noida, Uttar Pradesh, McGraw Hill Education.
- Silberschatz, A., Korth, H.F., & Sudarshan, S. (2021). *Database Systems Concepts*. Noida, Delhi, McGraw Hill.
- <https://enlear.academy/plsql-cursors-procedures-functions-and-packages-81b7280f3c08>
- <http://www.cs.kent.edu/~wfan/link/dbapre/dbatest/54905f.html>.
- <https://www.techtarget.com/searchdatamanagement/definition/database-management-system>
- https://www.cet.edu.in/noticefiles/279_DBMS%20Complete1.pdf

SEMESTER-II

**PTE02004L: DATABASE MANAGEMENT SYSTEM, SYSTEM ANALYSIS & DESIGN
(THEORY BASED PRACTICAL)**

Credits: L-T-P

0-0-2

Practical Marks: 50

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SEMESTER-II

PTE02005T: ACADEMIC WRITING

Time: 1: 30 Hours

Credits: L-T-P

2-0-0

Max. Marks: 50

Instructions for Examiners/Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions. Select at least one question from each section. The fifth question may be attempted from any section.

COURSE OBJECTIVES

On completion of this course the students will be able to:

- Understand writing and various styles of writing
- Perform good academic writing
- Distinguish a good academic writing from others
- Develop reports and thesis

SECTION-A

- a) Introduction to Academic Writing
- b) Concept of Writing and Styles of Writing

SECTION-B

- a) Concept and Scope of Academic Writing
- b) Essentials of good Academic Writing

SECTION-C

- a) Developing Reports:- Editing and Proof Reading
- b) Referencing

SECTION-D

- a) Paraphrasing and Acknowledging
- b) Reporting and Footnotes

Note: The Course may be taught through Workshops on the aforesaid topics and allied areas

SEMESTER-II

REFERENCES:-

- Canagarajah, A. Suresh (2002): A Geopolitics of Academic Writing (Pittsburgh: University of Pittsburgh Press)
- Clare, Judith, and Helen Hamilton (2003): Writing Research: Transforming Data into Text (Edinburgh: Churchill Livingstone)
- Coinam, David (2004). 'Concordancing Yourself: A Personal Exploration of Academic Writing', Language Awareness, 13, 1, pp. 49–55
- Crème, Phyllis, and Mary R. Lea (2008): Writing at University: A Guide for Students, 3rd edn (Maidenhead: McGraw-Hill; Open University Press)
- Hyland, Ken (2004): Disciplinary Discourses: Social Interactions in Academic Writing, Michigan classics edn.
- Northedge, A. (2005): The Good Study Guide (New Edition), The Open University.
- Richards, Janet C., and Sharon K. Miller (2005). Doing Academic Writing in Education: Connecting the Personal and the Professional (Mahwah, NJ: Lawrence Erlbaum)
- Ritter, R. M. (2005): New Hart's Rules: The handbook of style for writers and editors, Oxford University Press, Oxford.
- Strunk, W. (2006): The Elements of Style, Filiquarian Publishing, LLC.

SEMESTER-II

PTE02006T: UNIVERSAL HUMAN VALUES

Time: 1: 30 Hours

**Credits: L-T-P
2-0-0**

Max. Marks: 50

Instructions for the Paper Setters: -

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

COURSE OBJECTIVES

On completion of this course the students will be able to:

- Development of a holistic perspective based on self- exploration about self, family, society and existence.
- Understanding harmony in relationships among human beings, family, society and nature and existence
- Strengthening of self-reflection.
- Development of commitment and courage to act.

SECTION-A

Understanding Self and Human Aspirations

- a) Self-Exploration- Meaning, Content, Process (Natural Acceptance and Experiential validation).
- b) Human Aspirations- Concept, Requirements (Right understanding, relationship- and physical facility) and methods for fulfilment of aspirations.

SECTION-B

Harmony in Human Beings and Human-Human Relationship

- a) Human being as a co-existence of self and body: Characteristics of self, needs of self and body, Body as an instrument of self,
- b) Harmony of self with body: Sanyam and Health, Programs to ensure Sanyam& Health.

SEMESTER-II

SECTION-C

Harmony in Nature and Existence

- a) Understanding harmony in the Nature, Holistic perception of harmony at all levels of existence.
- b) Importance of Yoga in daily life; Ashtang Yoga (Eight stages of Yoga) and benefits of Asanas, Pranayama and Concentration

SECTION-D

Harmony on Professional Ethics

- a) Natural acceptance of human values, Humanistic Education, Humanistic Constitution, Humanistic Universal order and Ethical Human Conduct,
- b) Strategy for transition from the present state to Universal Human Order: At individual level: as socially and ecologically responsible citizens and professionals, At society level: as mutually enriching institutions and organizations.

Tutorials/ Sessional Work

- Discussion/presentation on living in relationship, harmony and co-existence.
- Reflection on prosperity v/s accumulation
- Reflections on relationships in family, hostel and institute as extended family, real life examples, teacher-student relationship.
- Enlist the causes of imbalance in nature caused by human being.
- Case Studies on conduct of human beings as professionals.

REFERENCE BOOKS:-

- Andrews, C. (2006). *Slow is Beautiful: New Vision of Community, Leisure and Joie De Vivre*. NewSociety Publishers Paperback in English.
- Azad, M.A.K. (1988). *India Wins Freedom*. Madras: Orient Longman Limited.
- Dharampal. (2003). *Rediscovering India*. New Delhi: Society for Integrated Development of Himalayas.

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SEMESTER-II

- Gandhi, M.K. (1921). *Hind Swaraj or Indian Home Rule*. Madras: Navajivan Publishing House.
- Gandhi, & Desai, M. H. (1993). *An autobiography: the story of my experiments with truth*. American ed. Boston, Beacon Press.
- Kumarappa, J.C. (1984). *Economy of Permanence*. Sarva-Seva-Sangh-Prakashan: Rajghat, Varanasi.
- Leonard, A. (2007). *The story of stuff*. Widescreen format. [Berkeley, Calif.], Free Range Studios.
- Nagraj, A. (1999). *Jeevan Vidya: EkParichaya*, Jeevan Vidya Prakashan, Amarkantak. Ajab Distributer.
- Rolland, R. (1930). *Mahatma Gandhi*. London: George Allen & Unwin Ltd. Museum Street.
- Rolland, R. (1961). *The Life of Vivekananda and the Universal Gospel*. Utter Pradesh: Swami Vireswarananda.
- Schumacher, E.F. (1999). *Small is beautiful: economics as if people mattered: 25 years later... with commentaries*. Point Roberts, Wash, Hatley & Marks Publishers.
- Sunderlal. (1929). *Bharat Mein Angreji Raj*. Allahabad: Triveni Nath Vajpai Press.
- Tripathi, A.N. (2004). *Human Values*, New Delhi, 2004: New Age Intl. Publishers.

Outcomes of the Course: By the end of the course, students are expected to become more

- Aware of themselves, and their surroundings (family, society, nature);
- Responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
- Critical thinkers.
- Sensitive to their commitment towards what they have understood (human values, human relationship and human society).
- Competent to apply what they have learnt to their own self in real life settings.

SEMESTER-II**PTE02007L: PROJECT REPORT**

Credits: L-T-P
0-0-4
Marks: 100

A project report of 100 marks assigned by the subject teacher will be prepared by a group of students (not exceeding five) under the supervision & guidance of the concerned teacher. The contents/theme of the project report will be based on paper II (ICT in Teaching) or any other area related to the Viva-voce of Project report will be conducted by an external examiner to be appointed by the University.

The following are the topics for the project report.

1. Students will take content from the paper (ICT in teaching and other areas related to the syllabus) discuss it with the subject teacher and design a course in G-suite.
2. Preparation of digital lesson plan based on web2.0 tools (Skype, Video sharing with YouTube, Google applications, Wiki and Slide Share)
3. Podcast preparation: Produce a podcast about a topic suggested by the teacher
4. Blended learning Lesson Plan: Create a Blended Learning Lesson Plan based on 4D design- (Discover, Define, Develop and Deliver) on the topic suggested by the teacher

SEMESTER-II

PTE02008T: LEARNING AND TEACHING

Time: 3 Hours

Credits: 4
Total Marks: 100

Instructions for Examiners/Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions. Select at least one question from each section. The fifth question may be attempted from any section.

COURSE OBJECTIVES

The course will enable the student teachers to -

- Develop an understanding about differential learning needs of the learners with regard to abilities, learning styles, socio-cultural differences, language, and learning difficulties.
- Develop awareness of the different contexts of learning.
- Reflect on their own implicit understanding of the nature and kinds of learning.
- Gain an understanding of different theoretical perspectives of learning including the constructivist perspective.
- Develop understanding about the concept of teaching from various perspectives.

SECTION-A

Understanding the Learner: Dimensions of differences in psychological attributes-cognitive abilities, interest, aptitude, creativity, personality, values & Self Esteem. Understanding learners from the perspective of multiple intelligences with a focus on Gardner's theory of multiple intelligences. Implications for teaching-learning in the light of changing concept of intelligence, including emotional intelligence.

Understanding differences based on range of cognitive abilities—learning difficulties, slow learners and dyslexics, intellectual deficiency, intellectual giftedness. Implications for catering to individual variations in view of difference rather than deficit perspective.

SECTION-B

Understanding Learning: Perspectives on human learning- Behaviourist (conditioning paradigm in brief), cognitivist, information-processing view, humanist, social-constructivist (drawing selectively on the ideas of Skinner, Piaget, Rogers, Vygotsky)

Relevance and applicability of various theories of learning for different kinds of learning situations: Role of learner in various learning situations, as seen in different theoretical perspectives, Role of teacher in teaching-learning situations: as transmitter of knowledge, facilitator, negotiator and co-learner.

SEMESTER-II

SECTION-C

Understanding Teaching: Concept, Variables of teaching, anatomy of teaching.

Levels of Teaching: Memory, Understanding and Reflective

SECTION-D

Teaching as a Profession: Teaching as profession (basic characteristics of teaching qualifying it as a profession. Professional development of teachers

Phases of Professional Development - Pre-service and In-service

Teacher Autonomy and Accountability.

References:-

- Bhatt, H. *The diary of a school teacher*: An Azim Premji University publications, www.arvindguptatoys.com/arvindgupta/diary-school-teacher-eng.pdf
- Burden, Paul R; Byrd, David. M. (1999). *Methods for Effective Teaching* (Sec Edition), Allyn and Bacon.
- Carr, D (2005), *Making Sense of Education: An Introduction to the Philosophy and Theory of Education and Teaching*, Routledge.
- Delpit, L (2006). *Other People's children, Cultural Conflict in the Classroom*. The New press.
- Dhar, T.N. (Ed). 1996. *Professional Status of Teachers*, NCTE, New Delhi.
- Kauchak, D. P and Eggen, P. D (1998). *Learning and Teaching, Research based Methods*, Boston: Allyn and Bocan
- Ladsen – Billings, G (1995). Toward a Theory of Culturally Relevant Pedagogy. *American Educational Research Journal*, 32 (3), 465-491.
- Lampert, M. (2001). *Teaching Problems and the Problems of Teaching*. Yale University press.
- NCERT (2005). *National Curriculum Framework*, New Delhi
- Olson, D.R. & Bruner, J.S. (1996). —Folk Psychology and Folk Pedagogy. In D.R. Olson & N. Torrance (Eds.). *The Handbook of Education and Human Development* (PP.9-27). Blackwell.
- Piaget, J. (1997). —Development and Learning. In M. Gauvain & M. Cole (Eds.), *Reading on the Development of Children*. New York: WH Freeman & Company.
- Shulman, L.S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 4-14.