Programme Project Report (PPR)
of
PGDCA

International Centre for Distance Education and Open Learning

Himachal Pradesh University, Summer Hill, Shimla-171005

Programme Project Report (PPR)

Programme: Post Graduate Diploma in Computer Applications (PGDCA)
i)   Programme Mission and Objectives
Mission: Focusing on the rural economy, tribal region, tough terrain is one of the mission of the ICDEOL and it tries to encourage student enrolment from among weaker sections even beyond the reservation limit. Regular mode of education is not sufficient enough to reach this goal. By introducing U.G and P.G. courses in a very relevant and popular discipline like BCA ,MCA and PGDCA through distance mode of education, we can reach to the unreached.
Objectives: ICDEOL aims to introduce/ continue post graduate diploma in computer science (PGDCA) under open and distance learning mode of education with a view to promote the holistic development of learners through academic excellence, employability, acquisition of analytical & technical skills and higher study. Students in the PGDCA diploma gain the knowledge and skills necessary for success in this competitive, rapidly changing field by achieving the following objectives:
•   PGDCA post graduates who will have successful careers based on their understanding of formal and practical methods of Application Development using the concepts of computer programming, software and design principles.
•   PGDCA post graduates will demonstrate analytical and design skills including the ability to generate creative solutions and foster team-oriented, professionalism through effective communication in their careers.
•   PGDCA post graduates who will exhibit effective work ethics and be able to adapt to the challenges of a dynamic job environment.
•   Demonstrate the ability to adapt to technological changes and innovations in the discipline.
•   Gain knowledge of algorithms and their role in computer science.
•   Acquire the knowledge, skills, experience, and values to become lifelong learners able to obtain employment in a computer-related field or go on to graduate study.

ii)   Relevance of the Programme with HEL'S Mission and Goals
The post graduate diploma in computer science (PGDCA) through the ODL mode will be quite relevant to the Higher Educational Institutions mission and goals and will prove as major contributing factor in its achievement. A post graduate diploma in computer application will provide adequate coverage of the discipline of computer science. The study of computer Science will prepare the students for life as informed, aware and awakened citizens ready to participate in IT Sector within country and abroad. It will deepen their technical skill.
 Career Prospects:
 Joining IT firms Software and Web Developments**:** PGDCA has endless scopes in software industry.
         Laboratory Assistant / Technician :
        A Laboratory Assistant/ Technician is an trainee who helps in student for their better understanding in computer based practical.

        School Coordinator:
After successful completion of PGDCA programme, the learner can join as school coordinator for training school students.

        Digital Marketing:

After PGDCA can also make a career in digital marketing. This field is emerging day by day.

Self Engagement:

After PGDCA, learner can also become an entrepreneur.

On the completion of the postgraduate diploma(PGDCA) students become eligible to join PG courses such as M.Sc, MCA in lateral entry scheme.

iii)   Nature of Prospective target group of learners: The PGDCA courses aim for the development of knowledge modules having the right content to take care of the aspirations of academic community and to address to the personalized and industrial needs of the learners under low level of disposable income, rural dwellers, women, unskilled men, minorities, disabled, etc. It will be open to all persons residing in any part of India and abroad irrespective of race, creed or class subject to the fulfilment of minimum qualifications prescribed for admission. However, ICDEOL will conduct personal contact programmes (PCP)/ examinations, etc. in respect of Post graduate diploma in Computer application (PGDCA) course within territorial jurisdiction of Himachal Pradesh as per UGC guidelines. The ICDEOL aims to provide opportunities to those aspirants who are either working or want to enhance their education level and technical skill while they are not able to attend regular colleges or university.

iv)   Appropriateness of Programme to be conducted in Open and Distance Learning Mode to Acquire Specific Skills and Competence

The PGDCA course intend to build the connectivity and knowledge network among and within institutions of higher learning in the country with a view of achieving a mass of learners in Computer Science. It will provide for a comprehensive and purposeful engagement between the teacher and the taught through a well-planned instructional package.

v) Instructional Design

Curriculum design and detailed syllabus:

The course structure and syllabi to be taught in PGDCA along with the paper setting and evaluation method are decided by the Board of studies of PG classes which is finally approved by the Faculty of Computer sciences.

Course Outline: PGDCA. Course (1 year)- two semester and scheme of examination. First Year (1st Semester)

Course Code	Paper	Max. Marks Theory	Internal Assess.	Exams. Duration (Hrs.)
DCS-101	Fundamentals of Programming Using C	75	25	3
DCS-102	PC Software	75	25	3
DCS-103	Operating system	75	25	3
DCS-104	Computer Organization and Architecture	75	25	3
DCS-105	Practical-I (C Language)	75	25	3
DCS-106	Practical-I I (PC Software)	75	25	3

Total = 600

SEMESTER –II

DCS-201	Data and File Structure	75	25	3
DCS-202	System Analysis and Design	75	25	3
DCS-203	Object Oriented Programming & C ++	75	25	3
DCS-204	Data base Management system	75	25	3
DCS-205	Practical-III (DFS Using C ++	75	25	3
DCS-206	Practical-IV (Data base Management system)	75	25	3
DCS-207	Project Work	200	-	-

Total = 800

Detailed Syllabus of PGDCA

DCS – 101   Fundamentals of Programming Using C
PART–A

Programming Tools: Problem analysis, Program constructs (sequential, decision, loops), Algorithm, Flowchart, Pseudo code, Decision table, Modular programming, Top Down and Bottom up approaches, Concept of High Level Languages, Low Level Languages, Assembly Languages, Compiler, Interpreter, Type of errors.
Overview of C: General structure of C Program.
Data types, Operators and expressions: Constants and Variables, Data types, Declaring Variables, Storage Classes, Different types of expressions and their Evaluation, Conditional Expression, Assignment statement, Enumerated data type, Redefining/ Creating data types, Library functions, Type casting.
Input/Output: Unformatted and formatted I/O Functions (Character and strings I/O, *Scanf ( ), Printf ( )*)
Control Statements: Decision making using *if, if-else, elseif* and *switch* statements, Looping using *for*, *while* and *do-while* statements, Transferring Program controlling *break* and *continue* statements, Programming examples to illustrate the use of these control statements.
PART-B

Pointers: Definition, Need of pointers, declaring Pointers, Accessing Values via Pointers, Pointer arithmetic, Types of pointers.
Array & strings: Introduction to arrays, Declaring arrays, Initializing arrays, Processing arrays, Pointers to arrays, Passing arrays as arguments to functions, Introduction to strings, Pointers to strings, Passing strings and Arrays of strings as arguments to a function, Programming examples to illustrate the use of arrays and strings.
Functions: Defining a function, Local variables, *return* statement, invoking a Function, specifying and passing arguments to a function, Functions returning non Integer, External, static, and register variable, block structure, initialization and recursion.
Structures: Declaring a structure type, Declaring Variables of structure type, Initializing Structures, Accessing Elements of structures, arrays of structures, nested structures, Pointers to structures.

Text Books:
1. Mullis Cooper: Spirit of C: Jacob Publications
2. Yashwant Kanetkar: Let us C: BPB

Refrence Books:
1. Kerninghan B.W. & Ritchie D. M.: The C Programming Language: PHI
2. Yashwant Kanetkar: Pointers in C: BPB
3. Gotterfied B.: Programming in C: Tata McGraw Hill

DCS –102   PC SOFTWARE
PART-A
       Operating system concept: Duties, Responsibilities and functions of an Operating system, General understanding of different Operating System Environment (Single user system, Multi user system, Graphical user interface system, character based system).
       Disk Operating System: Concept of Files and Directories, Internal commands, External commands, Batch Files, Filters, Redirection, Macros, Wild Card character
Booting Process, Configuration Files (Config.Sys)
       General Understanding Of Facilities, Features Of Windows Explorer, Control Panel Setting, Accessories, Recycle Bin.
Computer Virus: Prevention, Detection, Cure.
PART-B
Word Processing Concepts: Definition, Benefits, Facilities & Features in general.
MS- Office 97:
       MS- Word 97:Word processing using 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 97: 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.
       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.
Text Books:
1.   A.L.STEVENS: Teach Yourself Windows.
2.   A.L.STEVENS: Teach Yourself DOS.
3.   JONATHAN KAMIN: DOS-7.
4.   R.K.TAXALLI: Intro to software package, Galgotia publication.
5.   RAJIV MATTUS: dos quick reference , Galgotia .
6.   RAJIV MATTUS: Learning Word 97 for windows step by step BPB publication.
7.   RAJIV MATTUS: Learning Excel 97 for windows step by step BPB publication
8.   RAJIV MATTUS: Learning window 98 step by step BPB publication
9.   LONNIE .E. MOSELEY& DAVID M.BOODEY: Mastering office 97.
10.   MICRO SOFT OFFICE 97: Unleashed : Techmedia.
11.   JOHN WALKEN BACH: Excel 97
Note:
1.   Each theory paper shall be of 3 hours duration and shall carry 100 marks (75 marks for written semester examination and 25 for internal assessment).

2.	In all 8 question will be set three from PART -A and four from PART - B of the syllabus. Question no. 8 will be compulsory covering the entire syllabus of at least 5 parts.
3.	Examinees will attempt five questions in all. Two each from PART-A and PART-B. Question no. 8 will be compulsory.

**DCS – 103	OPERATING SYSTEM**
PART-A
	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.
	Process Management: Process- Process Concept, Process Scheduling, Operation On Processes, Cooperating Processes, Threads, Inter -Process Communication, CPU Scheduling– scheduling criteria, scheduling algorithms – FCFS, SJF, priority scheduling, round robin scheduling, multilevel queue scheduling, multilevel feedback queue scheduling, multiple processor scheduling, real time scheduling.
	Deadlocks: Deadlock Characterization, Methods For Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery From Deadlock.
PART-B
	Memory Management: Logical & physical address space, Swapping, Continuous Allocation (single partition, multiple partition), internal, external fragmentation, Paging, Segmentation, Segmentation With Paging, Virtual Memory, Demand Paging, Performance Of Demand Paging, Page Replacement, Page Replacement Algorithms– FIFO, optimal, LRU, LRU approximation algorithms, counting algorithms Thrashing, Demand Segmentation.
	File System Interface: File Concept, Access Methods–sequential, direct, index, Directory Structure–single-level, two–level, tree-structured, acyclic-graph, general graph.
	File System Implementation: File System Structure, Allocation Methods-contiguous allocation, linked allocation, indexed allocation, Secondary Storage Structure: Disk Structure, Disk Scheduling, FCFS, SSTF, SCAN, C-SCAN, Look Scheduling, Selection of A Scheduling Algorithm, Disk Management-disk formatting, boot block, bad blocks.
Text Books:
1.	Silberschatz, Galvin "Operating System Concepts", Addison Wesley Publishing Company, 1989.
Reference Books:
1.	William Stallings, "Operating Systems", Macmillan Publishing Company.
2.	Deitel H.M., "An Introduction To Operating System", Addison Wesley Publishing Company, 1984.
3.	Tanenbaum, A.S., "Modern Operating System", Prentice Hall of India Pvt. Ltd. 1995.
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3.	Examinees will attempt five questions in all. Two each from PART-A and PART-B. Question no. 8 will be compulsory.
DCS – 104 COMPUTER ORGANISATION and ARCHITECTURE
PART-A

Basics: Organization & Architecture, Structure & Function, A brief history, mechanical & electromechanical ancestors, First, Second, Third & later generations, Van-Neumann Machine, Block diagrams of computer system.

Register transfers & micro-operations: Register Transfer Language, Register transfer, Bus & memory transfers, Arithmetic loops, Logic loops, Shift loops, Arithmetic, logic, shift unit.

Basic computer organization & design: Instruction codes, Computer registers, Computer Instructions, Timing & Control, Instruction cycle, memory reference instruction, I-O interrupt, Design of basic computer, Design of accumulator logic.

Micro-programmed Control: Control Memory, Address sequencing, Design of control unit.

Central Processing Unit: General Register Organization, Stack organization, Instruction formats (zero, one, two, three), Address Instructions, Addressing Modes (direct, indirect, Immediate, relative, indexed), Data transfer & manipulation, Program control, RISC.

Computer Arithmetic: Addition & Subtraction, Multiplication algorithms, Division Algorithms, Floating point arithmetic operations,

PART -B

IO Organization: Peripheral devices, I/O interfaces, asynchronous data transfer, Modes of Data transfer, Priority Interrupts, DMA, I-O processors, Serial Communication.

Memory Organization: Memory Hierarchy, Main Memory, Associative Memory, Cache Memory, Virtual Memory, Memory management hardware.

Multiprocessors: Characteristics, Interconnection structures: Time shared, Common bus, Multi-port, Crossbar switch, Multistage, Inter-processor arbitration, Inter-processor communication & synchronization, cache coherence, multiprocessing, vector computation, Fault tolerant systems.

RISC: Instruction execution characteristics, Use of large register files, Computer based Register optimization, Reduced instruction set architecture, RISC pipeline.

Text Books:
1.   Morris M. Mano: Computer System & Architecture: PHI.
2.   Stallings & Williams: Computer Organization & Architecture: Maxwell Macmillan.

Reference Books:
1.   V.Rajaraman & Radhakrishnan: Introduction to Digital Computer Design: PHI
2.   P.Pal Chowdhary: Computer Organization & Design: PHI

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DCS – 201   DATA and FILE STRUCTURE
PART - A

Preliminaries: Concept & notation, common operation on data structures, algorithm complexity, time-space trade off between algorithm, physical & logical representation of different data structures.

Arrays: Arrays defined, representing arrays in memory, Various operation (traversal, insertion, deletion), Multidimensional arrays, Sequential allocation, Address calculation, Sparse arrays.

Linked List: Definition, type (linear, circular, doubly linked, inverted), representing linked lists in memory, advantages of using linked list over arrays, various operations on Linked list (traversal, insertion, deletion).

Stacks: Definition & concepts of stack structure, Implementation of stacks, Operation on stacks (push & pop), Application of stacks (converting arithmetic expression from infix notation to polish and their subsequent evaluation), quick sort technique to sort an array, recursion).

PART – B

Queue: Definition & concept of queues, implementation of queue, operation on queues (insert & delete), Type of queues (circular queue, priority queue).

Trees Structures: Tree, Binary Trees, Tree Traversal Algorithms (Pre-Order, In-Order, Post-Order), Threaded Trees, Trees in various Sorting & Searching Algorithms & their Complexity (Heap Sort, Binary Search Trees).

Sorting & Searching: Selection sort, Bubble sort, Merge sort, Radix sort, Quick sort, Sequential search, Linear search and their complexity.

Text Books:

1.   Jean Paul Tremblay & Paul G. Sorenson: An Introduction to Data Structures with Applications: Tata McGraw Hill.
2.   Aaron M. Tenenbaum, Yedidyah Langsam, Moshe J. Augenstein: Data Structures using C: PHI

Refrence Books:

1.   Robert L. Kruse: Data Structures & Program Design: PHI
2.   Aho, Hopcroft & Ullman: Data Structures and Algorithms: Addison Wesley.
3.   T.A. Standish: Introduction to Data Structures.
4.   Nell Dale & Susan C. Lilly: Pascal Plus Data Structures, Algorithms and Advanced Programming: Galgotia.

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DCS – 202   SYSTEM ANALYSIS AND DESIGN

PART-A

Overview of system analysis and design, Business systems concepts, systems development life cycle, project selection, feasibility analysis, design, implementation, testing and evaluation.

Project Selection: Source of project requests, managing project review and selection, preliminary investigation.

Feasibility Study: Technical and economic feasibilities, cost and benefit analysis.

System requirement specification and analysis: Fact finding techniques, Data flow diagrams, data dictionaries, process organisation and interactions, Decision analysis, decision trees and tables.

PART-B

Detailed Design: Modularisation, Module Specification, File Design, System Development Involving Data Basis.

Systems control and Quality Assurance: Design objectives, reliability and maintenance, software design and documentation tools, top down, bottomup and variants. Units and integration testing, testing practices and plans. System controls, Audit trails.
System Administration and Training, conversion and Operating Plans.

Hardware and software selection, Hardware acquisition, memory, processes, peripherals, bench-marking, vendor selection, software selection, operating systems, languages processes, performance and acceptance criteria.

Reference Books:
1.   James, A.S. : Analysis and Design of Information Systems, McGraw Hill, 1986.
2.   Ludeberg, M., Gulkoh1, G. & Hilsson, A.: Information Systems Development: A Systematic Approach, Prentice Hall Intern. 1981.
3.   Lesson, M.: Systems Analysis and Design, Science research Associates, 1985.
4.   Semprive, P.C. : System Analysis: Definition, Process and Design, 1982.

Note:
1.   Each theory paper shall be of 3 hours duration and shall carry 100 marks (75 marks for written semester examination and 25 for internal assessment).
2.   In all 8 question will be set three from PART -A and four from PART - B of the syllabus. Question no. 8 will be compulsory covering the entire syllabus of at least 5 parts.

3.   Examinees will attempt five questions in all. Two each from PART-A and PART-B. Question no. 8 will be compulsory.

DCS - 203   Object Oriented Programming & C^{++}
PART-A
Object oriented programming: Need for OOP, the project oriented approach, characteristics of OOP language- objects, classes, Inheritance, Reusability, Polymorphism, overloading advantage of OOP, the relationship between C and C^{++}.

Programming Basic- Basic program construction, output using cout, pre-processor directive, comments, integer variables, character variables, input with cin type float manipulator, type conversion, arithmetic operators, relational operators, loops and decision: loop- for, while, do, decision-if, if- else, switch, conditional operator, logical operator-AND, OR, NOT, other control statements-break, continue, goto.

Structures and functions: structures, Accessing structure members, structure within a structure, Enumerated Data type, simple functions, passing arguments to functions, Returning values from functions, reference arguments, overloaded functions, variable and storage class.
PART-B
Objects and classes: A simple class, classes and objects, specifying a class, using a class, C^{++} objects as physical objects, C^{++} objects as data types. Constructors, objects as function arguments, returning objects from functions.

Arrays: Array fundamental-defining array, array elements, Accessing array elements, Initializing arrays, multidimensional arrays, passing arrays to functions, array of objects, strings-string variables, Avoiding Buffer overflow, string constants, array of strings string as class members.

Operator overloading: Overloading unary operators-the operator keyboard, operator arguments, operator return values nameless temporary objects, limitation of increment operators, overloading Binary operators, data conversion, Pitfalls of operator overloading and conversion.

Inheritance: Derived class and base class, specifying the derived class, accessing base class, members, derived class constructors, overriding member functions, class hierarchies, public and private Inheritance, levels of inheritance, multiple inheritance.

Text Book:
Robert Lafore, "Object oriented programming in Turbo C^{++}." Galgotia Publications.

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2.   In all 8 question will be set three from PART -A and four from PART - B of the syllabus. Question no. 8 will be an objective/short answer type question.
3.   Examinees will attempt five questions in all. Two each from PART-A and PART-B. Question no. 8 will be compulsory.

DCS – 204   DATABASE MANAGEMENT SYSTEMS
PART-A
        Basic Concepts, Data Modeling for a Database, Records and Files, Abstraction and Data Integration, The Three-Level Architecture Proposal for DBMS, Components of a DBMS, Advantages and Disadvantages of a DBMS.
        Data Models, Data Associations, Data Models Classification, Entity Relationship Model, Relational Data Model, Network Data Model, Hierarchical Model.
        The Relational Model, Relational Database, Relational Algebra, Relational Calculus.
        Relational Database Manipulation, SQL, Data Manipulation, Basic Data Retrieval, Condition Specification, Arithmetic and Aggregate Operators, SQL Join: Multiple Tables Queries, Set Manipulation, Categorization, Updates, Views: SQL, QUEL, Data Definition, Data Manipulation; QUEL, Condition Specification, Renaming, Arithmetic Operators, Multiple Variable Queries, Aggregation Operators in QUEL, Retrieve into Temporary Relation, Updates, Views.

PART-B
        Relational Database Design, Relational Scheme and Relational Design, Anomalies in a Database: A Consequence of Bad Design, Universal Relation, Functional Dependency, Relational Database Design.
        Concurrency Management, Serializability, Concurrency Control, Locking Scheme, Timestamp-Based Order, Optimistic Scheduling, Multiversion Techniques, Deadlock and Its Resolution.
        Database Security, Integrity, and Control, Security and Integrity, Threats, Defence Mechanisms, Integrity .

Text Books:
1.   Desai, B., "An Introduction To Database Concepts." Galgotia Publications, New Delhi.

Refrence Books:
1.   Date C.J., "An Introduction to Database Systems", Narosa Publishing House, New Delhi.
2.   Elimsari And Navathe, "Fundamentals of Database Systems", Addison Wesley, New York.
3.   Ullman, J.D , "Principals Of Database Systems", Galgotia Publications, New Delhi.

Note :

1.   Each theory paper shall be of 3 hours duration and shall carry 100 marks (75 marks f or written semester examination and 25 for internal assessment).
2.   In all 8 question will be set three from PART -A and four from PART - B of the syllabus. Question no. 8 will be an objective/short answer type question.
3.   Examinees will attempt five questions in all. Two each from PART-A and PART-B. Question no. 8 will be compulsory.

Duration of Programme:
Postgraduate Diploma in Computer Application (PGDCA) is one year post graduate course spread over two semesters.
Faculty and Support Requirement: Two regular faculties (one Professor and 1 Assistant Professors) have been appointed by the H.P. University to run these courses. They are Dr. Aman Kumar Sharma, Professor and Dr. Balvir Singh Thakur, Assistant Professor
Besides, the University has 5 experienced faculties in the Department of Computer Science (PG centre). The students who will be admitted in these courses will also get help from them. PCPs will be conducted by these experienced faculty members to maintain the quality of the education. Special Lectures will also be conducted by these experience faculties of Himachal Pradesh University.

Instructional Delivery Mechanism
        ICDEOL has followed the Dual Mode of Instructional Delivery Mechanism.
Printed Material in Self-Learning Mode (SLM): The printed material of the Programme in the form of self-learning Mode (S LM) will be supplied to the students during their enrolment to the course.
Personal Contact Programme (PCP): Personal contact Programme (PCP) will be organized for 10 days from 10:00 a.m. to 5:00 p.m. at list one month before the examination. As a very important strategy of face to face classroom teaching, the interactions during Personal Contact Programmes will benefit the students immensely.
Informal Counselling: Both online and off line counselling will be done with the students as and when required by them to solve their problems.
Identification of Media

Student support service system

vi)   Procedures for Admissions, Curricula transaction and Evaluation
        Admission Policy

Intake: No Limit
Minimum Eligibility: The candidate applying for PGDCA course must have completed graduation in any discipline with 40% marks.
        Fee Structure:

Course	Fee for Students passing from H.P Board & to be	Fee for Students already	Fee for student coming from other university / Board &

	registered with H.P University	registered with H.P University	not regd. With H.P University
PGDCA	Rs.10000 /	Rs. 9800/	Rs. 10100/

Financial Assistance: Further, as per order of the Hon'ble High Court CWPIL No.30g 2011, the student with special needs with more than 40% disability admitted to any course of study running in the H. P. University, Shimla -5 will not be charged any fee.

Policy of programme delivery

Web tools

Curriculum Transaction: In the PGDCA course, we impart instructions mainly through Lecture method during the Personal Contact Progamme. We also make use of smart class room. The printed study material is sent to the students by post. Efforts are afoot to provide the study material in soft copies and also through email to the learners and to provide them the facility to download the study material from the website.

Academic Year Planner [Programmes under Semester System]:PGDCA

Sr.No	Name of Activity	July		January	
		From	**TO**	**From**	**TO**
1.	Admission	JULY	AUGUST	January	February
2.	Contact Programmes (counselling, Practical, etc.)	September	October	March	April
3.	Assignment Submission (if any)	September	October	February	March
4.	Evaluation of Assignment	NOV	NOV	May	MAY
5.	Examination	December	December	June	June

(viii) Medium of Instruction and Examination, Evaluation Procedure
Medium of Instruction: The medium of instruction in PGDCA is in English. The study material will be made available to the student in English language. The lectures in personal contact programme are generally delivered in English.
Examination: ICDEOL is an institution owned and controlled by the authority of Himachal Pradesh University. The examination in respect of ICDEOL students is conducted by the Himachal Pradesh University. All matters relating to the examinations, i.e. result mark sheet, degree etc. are dealt with the controller of the examination.
Examination Schedule: The annual examination schedule for PGDCA course is in month of December (for odd semesters) and in the month of June (for even semesters)
Evaluation: Though evaluation of Assignments/Seminar/ class test/ tutorial etc. are conducted to evaluate the students, yet the final evaluation is done through Term End Examination (weight age: 100%). In evaluations of the PGDCA, papers are sent to external examiners of other university for evaluation.

(vii)   Requirements of the Laboratory Support and Library Resources

Laboratory support: The ICDEOL has a Computer Lab with state-of-the-art infrastructure located in a spacious air conditioned hall, housing a local server, 52 personal computers connected by high speed Internet and wireless networks, LAN and printers, white board with multi-media projection facilities.

LAB COMPUTERS WITH CONFIGURATION				
Sr.	Computer Model	Configuration	Software	Usage
1	HP Elite desk 800 G1	Intel core i7 Processor, 3.40 GHz RAM: 4GB Storage: 500GB	Windows 8.1 Operating System Professional	Practical and program Execution
Total	52			

Library Resources: ICDEOL has its own well-equipped library with adequate no. of good reference books, journals and periodicals on various subjects including Political Science. The ICDEOL library has a total collection of about 26,000 books including volumes of periodicals. The books can be issued to the ICDOL students for 21 day. The center's library will be further strengthened by including more titles on distance education as well as the latest reference books and journals. The ICDEOL has an exclusive library which caters to the needs of the students of distance education. Library books are maintained in racks and shelves with glass doors.

viii)   Cost Estimate of the Programme and the Provision
     The cost estimate of the UG and PG courses in political science under ODL mode of education will be restricted under the following head of expenditure

Sr. No.	Type of Head	Expenditure (Session 2018-2019)	Expenditure (Session 2019-2020)	Proposed Cost Estimation (Hike @10%)
1.	**Programme Development**			
i.	Development and Printing Cost of Self Learning Material	1,11,792/-	7,6696/-	
ii.	Purchase of Books for Library	1,43,77/- **(For all Courses)**	1,81959/- **(For all Courses)**	2,00155/- **(For all Courses)**
iii.	Stationary	47,497/- **(For all Courses)**	1,91,479/- **(For all Courses)**	2,10,627/- **(For all Courses)**
2.	**Delivery**			
i.	Advertisement	5,55,479/- **(For all Courses)**	30,38,012/- **(For all Courses)**	33,41,813/- **(For all Courses)**
ii.	Telegram & Postage Charges of Self Learning Material	14,72,121/- **(For all Courses)**	13,78,641/- **(For all Courses)**	15,16505/- **(For all Courses)**
iii.	Expenditure on the Conduct of PCP	4,56,000/-	9,77,700/-	
3.	**Maintenance**			

i.	Maintenance and Repairs of Laboratory Computers & Smart Classrooms	6254/- **(For all Courses)**	Nil	6879/- **(For all Courses)**

ix) Quality Assurance Mechanism and expected Programme outcomes

The Himachal Pradesh University has an IQAC with the following objectives:

The primary aim of the IQAC is to develop system for conscious, consistent and catalytic action to improve the academic and administrative performance of the institution.

IQAC is to keep the institution abreast of and abuzz with quality sustenance activities on a wide gamut of pertinent issues.
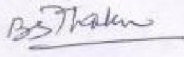
IQAC is to generate good practices, ideas, planning, implementing and measuring the outcome of academic and administrative performance of the institution.

The IQAC submits the Annual Quality Assurance Report of the University duly approved by statutory bodies of the University to NAAC regularly.
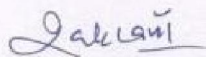
In the ODL mode, Director, ICDEOL have already established a Centre for Internal Quality Assurance (CIQA) in accordance with the ODL Regulation, 2017 with the following expected outcomes:

- It tries to ensure quality service to the learners of the subject through development of quality Study Learning Material or SLM, integration of modern methods of teaching learning including usage of ICT and credibility of evaluation procedures.
- It also tries to identify the key areas in which the ICDEOL should maintain quality.
- Another important function of the CIQA is to prepare Program Project Report(PPR) of the programs/courses being offered by the concerned School/Department or proposed to be launched in the near future with due approval of competent authority.
- As and when the UGC/NCTE asked to revise the curriculum, the ODL curriculum will be changed accordingly.
- Steps will be initiated to install audio-video instructional delivery mechanism.
- Support services will be improved from time to time according to the needs of the learners.
- Self-Instructional Material will be developed in SLM mode by using internal and external faculty and the same is edited by senior Professors.
- Development of quality culture in the campus and encourage creativity and innovation among the faculty and staff. Record activities undertaken on quality assurance along with preparation of the PPRs and Annual Reports. The program aims to make learners knowledgeable, proficient and competent enough to secure good job opportunities as well as take up further research work in the field of social sciences.
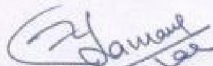
The PPR is prepared by the following members of the Department of Computer Science (ICDEOL) under the guidance of Director, ICDEOL, H.P. University, Shimla.

1. Dr. Aman Kumar Sharma
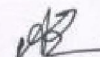
2. Dr. Balvir Singh Thakur

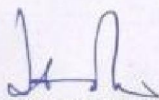## Member of Centre for internal Quality Assurance (CIQA)
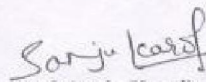
(Dr. Joginder Singh Saklani)
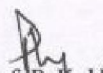(Member)

(Dr. Chaman Lal)
(Member)

(Dr. Ashwani Rana)
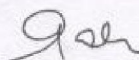(Member)

(Prof. Hari Mohan)
(Member)

(Porf. Sanju Karol)
(Member)

(Prof. P. K. Vaid)
(Member)

(Sh. Amar Singh)
(Convener)

(Prof. Kulwant Singh Pathania)
(Director)