

PROGRAMME PROJECT REPORT (PPR)

Diploma in Software Development and Programming (DSDP)

1. Introduction about the Programme

A Programme Diploma in Software Development and Programming (DSDP) is designed to equip individuals with the knowledge and skills necessary to create, maintain, and optimize software applications. It encompasses a wide range of programming languages, software development methodologies, and tools to prepare students for diverse roles in the field of software development.

2. Programme Mission & Objectives

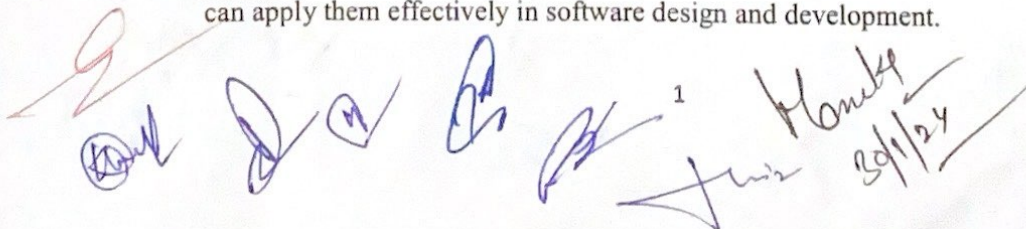
2.1 Mission Statement

The Diploma in Software Development and Programming (DSDP) is dedicated to nurturing a new generation of technologists and innovators in the dynamic field of software engineering. Our mission is to provide a rigorous and practical education that equips students with the knowledge, skills, and ethical foundation needed to thrive in the ever-evolving world of technology.

2.2 Objectives

The Programme has been framed to achieve the following main objectives:

- To equip students with a strong foundation in programming languages, algorithms, data structures, and other technical aspects of software development.
- To provide practical, hands-on experience in coding, ensuring that students can proficiently write, debug, and maintain code in various programming languages.
- To familiarize students with the entire software development lifecycle, including requirements gathering, design, coding, testing, deployment, and maintenance.
- To provide a solid understanding of database concepts and management, including relational databases, SQL, and familiarity with popular database management systems.
- To ensure that students grasp the principles of Object-Oriented Programming (OOP) and can apply them effectively in software design and development.



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3. Relevance of the Programme

The relevance of a Diploma in Software Development and Programming (DSDP) lies in its alignment with the current demands and trends in the field of technology and software engineering. As technology continues to evolve, software development plays a pivotal role in various industries.

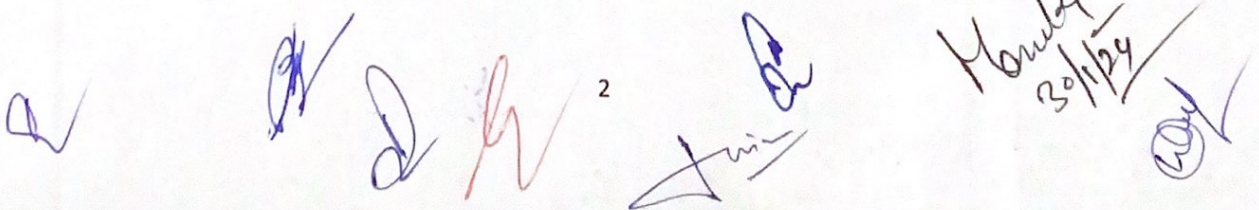
4. Prospective Target Group

- Having passed 10+2 in any Stream or the equivalence examination or the higher examination from the recognized Board/University.
- Having passed 2 Years ITI Programme in any trade after Matriculation from Punjab State Board of Technical Education & Industrial Training, Chandigarh or such examination from any other recognized State Board of Technical Education.
- Having passed 3 Years Diploma in any stream after Matriculation from Punjab State Board of Technical Education & Industrial Training, Chandigarh or such examination from any other recognized State Board of Technical Education.

Learners with above said eligibility may join this course to improve their knowledge, skills, employability, and entrepreneurship ability. The working persons and who cannot study through regular mode can continue their education through this open learning mode.

5. Appropriateness of the Programme

The Programme will provide academic continuity to the learning community and will facilitate continuous professional development for the employees and entrepreneurs across the country and Punjab state, in particular. The Programme aims to reach the learners who are distant and those lacking access. To reach the unreached, the courses' instructions and specially prepared study material in the form of printed notes and audio-video lessons to the learners will be delivered at their door steps through postal correspondence and digital media like e-mail, website etc. Limited face-to-face contact sessions will be held at Learner Support Centres (LSC) set up by the university as close as possible to the learner's home. Communication with the university and interaction between the teacher and the learners will be further facilitated using electronic media options like telephone, e-mails, chat sessions, video conferencing and tele conferencing, if and when required. All of these characteristics will help learners to engage in relevant, purposeful and interesting lessons.



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Apart from this, the learners will have the advantage to study at their own pace and convenience as the Programme can be completed in the time span ranging from one year to two years.

The multiple exit and enter option for learners is facilitated. Learners are allowed to exit the Programme after the six months obtained at least 20 credits with a relevant certificate and re-enter the same Programme at a later time.

6. Instructional Design

Annexure-A (Course Scheme of Diploma in SDP)

Annexure-B (Syllabi of Diploma in SDP)

7. Procedure for Admissions

Notifications regarding admission will be published in the leading national and regional newspapers. In addition to this, all the required information will be updated regularly on the university website

7.1 Programme Duration: 1 Year to 2 Years

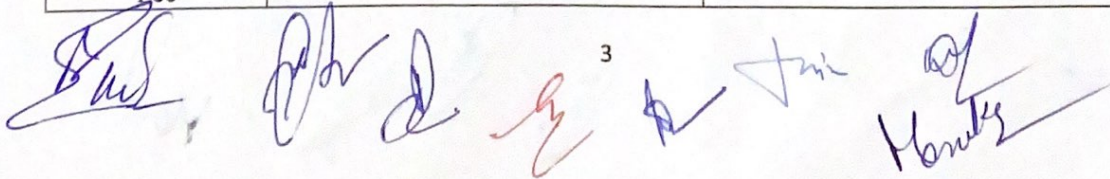
7.2 The Medium of Examination: English

7.3 Eligibility:

- Having passed 10+2 in any Stream or the equivalence examination or the higher examination from the recognized Board/University.
- Having passed 2 Years ITI Programme in any trade after Matriculation from Punjab State Board of Technical Education & Industrial Training, Chandigarh or such examination from any other recognized State Board of Technical Education.
- Having passed 3 Years Diploma in any stream after Matriculation from Punjab State Board of Technical Education & Industrial Training, Chandigarh or such examination from any other recognized State Board of Technical Education.

7.4 Total Programme Fee:

| Fee Head Details | Semester-1 | Semester-2 |
|--------------------------------------|------------|------------|
| Registration/ Continuation Fee | 300 | 300 |

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|---------------------------|------|------|
| Tuition Fee | -- | -- |
| Examination Fee | 1400 | 1400 |
| I.T. and other Charges | 1100 | 1100 |
| Security Fee (Refundable) | -- | -- |
| Total Fee (Rs.) | 2800 | 2800 |

7.5 Instructional Delivery Mechanisms:

The Programme has been designed with the aim to reach the distant and those lacking access to a regular mode of education. The courses' instructions and specially prepared study material will be made available through Learner Support Centres (LSCs) and digital media like e-mail, website etc. Limited face to face contact sessions will be held at the study centers set up by the university as close as possible to the learner's home. Communication with the university and interaction between the teacher and the learners will be further facilitated using electronic media options like telephone, e-mails, chat sessions, video conferencing and tele conferencing, if and when required.

Besides this, Counseling Sessions will be held at all the LSCs regularly during weekends. The university will also conduct live/virtual classes for learners using modern ICT methods. However, to ensure learner participation and interaction, online classes will be blended with face to face discussions and meetings with the learners.

8. Evaluation

The learners' progress is measured through the means of continuous evaluation and end semester examinations.

8.1 Continuous Internal assessment through assignments

Assignments help the learners to recapitulate the theory and go back to the text again in case they are unable to answer a particular question. Thus, assignments also help to reinforce learning in distance and open learning system of education. The assignments will consist of a set of questions and activities that have to be answered by the Programme participants by remaining at their own place.

Two assignments will be submitted for a 4 credits course and one assignment will be submitted by the learner for a 2 credits course. The assignments will cover all or any types of questions

(long answer type, short answer type, objective type, multiple choice questions and case studies).

Learners will be required to obtain 40% marks as pass percentage in each assignment separately. In the final result, assignments will carry 30% weightage.

8.2 Semester End Examination

Semester end examination is the major component of the evaluation system and carries 70% weightage in the final result. The university will conduct end semester examination twice a year i.e., in June and in December. The learners can take the examination only after the completion of the course, failing which they can take the same in December or June of subsequent years but within the total span of the Programme. In case any student fails to get a passing score in the semester end examination, they will be eligible to reappear in the next semester end examination for that course as and when it is held but within the total span of the Programme only.

In order to claim Certificate/Diploma in SDP, the learner is required to score at least 40% marks in both continuous evaluations (i.e.in assignments) as well as in semester end examinations separately.

8.3 Updated Notification for the Learners

The information regarding the university policies and procedures, academic activities like assignment submissions, question papers, results and other notices related to examination and evaluation will be uploaded on the official website of the university.

9. Laboratory Support

Modernize Computer Labs at the Learner Support Centres (LSCs) will be provided with all latest computers and software required for this Programme.

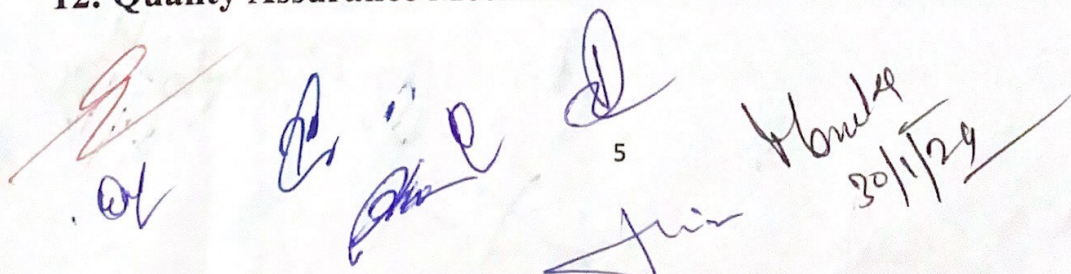
10. Library Resources

The students may avail the library facilities at their Learner Support Centres (LSCs).

11. Cost Estimation

The cost of the Programme will be as per the fee decided upon.

12. Quality Assurance Mechanism

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The university has constituted a "Centre of Internal Quality Assurance (CIQA) as per UGC (Open and Distance Learning) Regulations, 2020.

13. Programme Outcomes (POs)

Programme: Diploma in SDP

| Programme Outcomes (POs) | |
|---|---|
| On successful completion of this Programme, the students will be able to: | |
| PO1 | Demonstrate proficiency in C/C++ programming languages commonly used in software development. |
| PO2 | Design and implement software solutions for real-world problems using appropriate software development methodologies. |
| PO3 | Develop and manage databases, ensuring efficient data storage and retrieval. |
| PO4 | Apply algorithmic thinking and problem-solving skills to solve complex computational problems. |
| PO5 | Apply software testing techniques to ensure the reliability and quality of developed software. |
| PO6 | Work effectively in a team, understanding and applying collaborative development practices. |
| PO7 | Understand and adhere to ethical standards in software development. |
| PO8 | Demonstrate a commitment to lifelong learning and professional development. |

14. Programme Specific Outcomes (PSOs)

Programme: Diploma in SDP

| Programme Specific Outcomes (PSOs) | |
|---|---|
| On successful completion of this Programme, the students will be able to: | |
| PSO1 | Demonstrate proficiency in programming languages commonly used in software development, such as C/C++. |
| PSO2 | Understand and apply principles of software design and architecture to develop scalable and maintainable software solutions. |
| PSO3 | Demonstrate knowledge and implementation skills of algorithms and data structures to solve complex problems efficiently. |
| PSO4 | Design and implement database systems, including data modeling, querying, and database management, using technologies like SQL. |
| PSO5 | Understand basic project management principles and apply them to software development projects. |

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15. Course Outcomes (COs)

Course Outcomes (COs) of Courses of Semester-1

Course#1

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| Course: Fundamentals of Computer | |
| Course Code: FC-1-01T | |
| Course Outcomes (COs) | |
| After the completion of this course, the students will be able to: | |
| CO1 | Learn the basic knowledge of computer hardware and software |
| CO2 | Get basic knowledge of number system |
| CO3 | Gain knowledge of computer languages such as machine language, assembly language, high level language, 4GL. |
| CO4 | Learn hands on experience with operating systems |
| CO5 | Learn the computer networks, Information Technology and Society |

Course#2

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| Course: Introduction to Software Engineering | |
| Course Code: ISE-1-01T | |
| Course Outcomes (COs) | |
| After the completion of this course, the students will be able to: | |
| CO1 | Learn the basic knowledge of software engineering |
| CO2 | Get basic knowledge of software process and project planning |
| CO3 | Gain knowledge of software requirements analysis |
| CO4 | Understands the detailed knowledge of software design and coding. |
| CO5 | Understand the software testing and maintenance that is relevant to the industry. |

Course#3

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| Course: Computer Programming | |
| Course Code: CP-1-02T | |
| Course Outcomes (COs) | |
| After the completion of this course, the students will be able to: | |
| CO1 | Develop the ability to analyze problems, design algorithms, and implement solutions using C/C++ programming, showcasing proficiency in algorithmic problem-solving skills. |
| CO2 | Implement and manipulate fundamental data structures such as arrays, linked lists, stacks, queues, trees, and hash tables in C/C++, demonstrating competence in choosing and utilizing appropriate data structures for different scenarios. |
| CO3 | Gain expertise in handling exceptions, debugging C/C++ code, and implementing error-handling strategies to create robust and reliable programs. |
| CO4 | Understand and apply principles of multithreading and concurrency in C/C++. |

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| | including synchronization mechanisms, thread communication, and concurrent programming, showcasing the ability to develop efficient and responsive applications. |
| CO5 | Familiarize oneself with common C++ frameworks gaining an understanding of how frameworks can streamline development and improve code organization and maintainability. |

Course#4

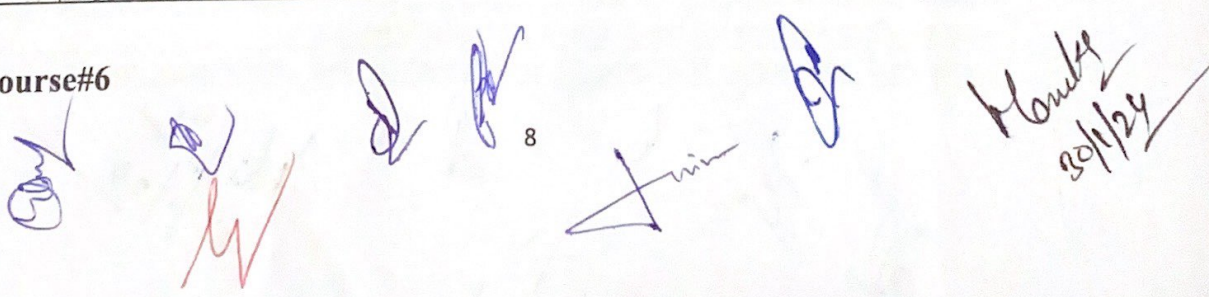
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| Course: Computer Programming Lab | |
| Course Code: CP-1-02P | |
| Course Outcomes (COs) | |
| After the completion of this course, the students will be able to: | |
| CO1 | Demonstrate proficiency in C/C++ programming by successfully designing, coding, and debugging Java applications to solve a variety of programming problems. |
| CO2 | Implement and manipulate fundamental data structures, such as arrays, linked lists, stacks, and queues, showcasing the ability to choose and apply appropriate data structures based on problem requirements. |
| CO3 | Apply object-oriented programming principles effectively, demonstrating the ability to design and implement classes, encapsulate data, utilize inheritance and polymorphism, and create reusable and modular code. |
| CO4 | Develop strong algorithmic problem-solving skills by designing and implementing efficient algorithms to solve programming challenges, demonstrating an understanding of algorithm complexity and optimization. |
| CO5 | Gain competence in error handling and debugging C/C++ code, utilizing debugging tools and techniques to identify and resolve errors effectively, thereby producing robust and error-free programs. |

Course Outcomes (COs) of Courses of Semester-2

Course#5

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| Course: Data Base Management System (DBMS) | |
| Course Code: DBMS-2-01T | |
| Course Outcomes (COs) | |
| After the completion of this course, the students will be able to: | |
| CO1 | Understand the fundamental elements of database management system. |
| CO2 | Understands the three level architecture of DBMS and mapping between these levels. |
| CO3 | Familiar with the hierarchical model, network model, entity relationship model and relational model. |
| CO4 | Acquire knowledge of normalization technique that reduces data redundancy and eliminates undesirable characteristics like Insertion, Update and Deletion Anomalies. |
| CO5 | Apply SQL to solve problems |

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| Course: Data Base Management System (DBMS) Lab | |
| Course Code: DBMS-2-01P | |
| Course Outcomes (COs) | |
| After the completion of this course, the students will be able to: | |
| CO1 | Implement Basic DDL, DML and DCL commands. |
| CO2 | Understand Data selection and operators used in queries and restrict data retrieval and control the display order. |
| CO3 | Use Aggregate and group functions to summarize data. |
| CO4 | Join multiple tables using different types of joins. |
| CO5 | Implementation of different types of operators in SQL |

Course#7

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| Course: Data Structures | |
| Course Code: DSDP-2-02T | |
| Course Outcomes (COs) | |
| After the completion of this course, the students will be able to: | |
| CO1 | Understand basic data structures such as arrays, linked lists, stacks and queues. |
| CO2 | Understand non-linear data structures like trees and graphs. |
| CO3 | Apply stack for evaluation of arithmetic expressions, and conversion from infix to post fix and recursion. |
| CO4 | Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data. |
| CO5 | Design algorithm in context of space and time complexity and apply asymptotic notation. |

Course#8

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| Course: Data Structures Lab | |
| Course Code: DSDP-2-02P | |
| Course Outcomes (COs) | |
| After the completion of this course, the students will be able to: | |
| CO1 | Implement basic data structures such as arrays and linked list. |
| CO2 | Develop programs to demonstrate fundamental algorithmic problems including Tree Traversals and Graph traversals. |
| CO3 | Implement various searching and sorting algorithms. |
| CO4 | Develop programs to demonstrate the implementation of various operations on stack |
| CO5 | Develop programs to demonstrate the implementation of various operations on queue |

Course#9

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| Course: Project | |
| Course Code: DSDP-2-03P | |

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Course Outcomes (COs)

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

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| CO1 | Demonstrate a sound technical knowledge in the field of Software Development and Programming. |
| CO2 | Gain ability to identify research gaps through literature survey, problem identification, formulation and solution. |
| CO3 | Design solutions to problems utilizing a systems approach. |
| CO4 | Gain ability of communication, management, leadership and entrepreneurship skills. |
| CO5 | Obtain capability and enthusiasm for self-improvement through continuous professional development and life-long learning |

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