Shri Vaishnav Vidyapeeth Vishwavidyalaya
Shri Vaishnav Institute Of Information Technology
Choice Based Credit System (CBCS) in the light of NEP-2020
B.Tech(CSE/IT), B.Tech+MBA(CSE) and B.Tech+M.Tech(CSE/IT)
SEMESTER-VI(2023-2027)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS601N	DCC	Compiler Design	60	20	20	30	20	2	1	2	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit.
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Course Objectives:

- To introduce the major concept areas of language translation and compiler design
- To enrich the knowledge in various phases of compiler and its use
- To provide understanding of steps of programming necessary for constructing a compiler

Course Outcomes:

- Ability to apply the knowledge of lex tool &yacc tool to develop a scanner & parser
- Ability to design and develop software system for backend of the compiler
- Ability to comprehend and adapt to new tools and technologies in compiler design

Syllabus

Unit – I: **8 Hours**

Introduction: Compiler**,** Compilers analysis of the source program**,** Phases of a compiler**,** Cousins of the Compiler, Grouping of Phases and Compiler construction tools, Lexical Analysis, Role of Lexical Analyzer, Input Buffering and Specification of Tokens.

Unit – II: **10 Hours**

Syntax Analysis: Role of the parser, Writing Grammars, Context-Free Grammars, Top Down parsing, Recursive Descent Parsing, Predictive Parsing, Bottom-up parsing, Shift Reduce Parsing, Operator Precedent Parsing, LR Parsers, SLR Parser – Canonical LR Parser – LALR Parser.

Unit – III: **9 Hours**

Intermediate Code Generation: Syntax Directed Definitions, Evaluation Orders for Syntax Directed Definitions, Intermediate languages**,** Declarations, Assignment Statements, Boolean Expressions, Case Statements, Three Address code, Back patching, Procedure calls.

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Unit – IV: **10 Hours**

Code Optimization and Run Time Environments: Introduction, Principal Sources of Optimization, Optimization of basic Blocks, DAG representation of Basic Blocks - Introduction to Global Data Flow Analysis, Runtime Environments, Source Language issues, Storage Organization, Storage Allocation strategies, Access to non-local names, Parameter Passing, Error detection and recovery.

Unit – V: **9 Hours**

Code Generation: Issues in the design of code generator, The target machine, Runtime Storage management, Basic Blocks and Flow Graphs, Next-use Information, A simple Code generator, Peephole Optimization.

Text Books:

1. Alfred V. Aho, Jeffrey D Ullman, “Compilers: Principles, Techniques and Tools”, Pearson Education Asia, 2012
2. Jean Paul Tremblay, Paul G Serenson, "The Theory and Practice of Compiler Writing", BS Publications, 2005
3. Dhamdhere, D. M., "Compiler Construction Principles and Practice", 2nd edition, Macmillan India Ltd., New Delhi, 2008

References:

1. Allen I. Holub, “Compiler Design in C”, Prentice Hall of India, 2003
2. C. N. Fischer and R. J. LeBlanc, “Crafting a compiler with C”, Benjamin Cummings, 2003
3. HenkAlblas and Albert Nymeyer, “Practice and Principles of Compiler Building with C”, PHI, 2001
4. Kenneth C. Louden, “Compiler Construction: Principles and Practice”, Thompson Learning, 2003

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List of Experiments:

1. To study the Lex Tool.
2. To study the Yacc Tool.
3. Write a program to implement Lexical Analyzer to recognize few patterns of C.
4. Write a program to implement the Recursive Descent Parser.
5. Write a program to implement the Computation of FIRST and FOLLOW of variables of grammar.
6. Write a program to compute the leading and trailing symbols of grammar.
7. Write a program to implement Operator Precedence Parser.
8. Write a program to implement SLR parser.
9. Write a program to check the data types.
10. Write a program to implement the generation of three address code.
11. Write a program to implement the computation of postfix notation.
12. Write a program to implement the computation of Quadruple.

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BTCS602N	DCC	Object Oriented Analysis and Design	60	20	20	30	20	3	0	2	4

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COURSE OBJECTIVES:

1. To learn the concept of Object Oriented Software Development Process
2. To get acquainted with UML Diagrams
3. To understand Object Oriented Analysis Processes

COURSE OUTCOMES:

1. Understand Object Oriented Software Development Process
2. Gain exposure to Object Oriented Methodologies & UML Diagrams
3. To apply Object Oriented Analysis Processes for projects

SYLLABUS

UNIT–I **10 HOURS**

Introduction: About Object Orientated Technology, Development and OO Modeling History. Modeling Concepts: Modeling design Technique, Three models, Class Model, State model and Interaction model.

UNIT–II **9 HOURS**

Class Modeling: Object and class concepts, link and association, Generalization and Inheritance, Advanced class modeling- aggregation, Abstract class meta data, constraints. State Modeling:Event, state, Transition and conditions, state diagram, state diagram behavior, concurrency, Relation of Class and State models. Interaction Modeling:Use case Models, sequence models, activity models

UNIT–III **8 HOURS**

Analysis and Design: Development Life cycle, Development stages, Domain Analysis-Domain class model, domain state model, domain interaction model, Iterating and analysis. Application Interaction model, Application class model, Application state Model, Adding operation.

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UNIT–IV **7 HOURS**

System Design: Estimating Performance, Making a reuse plan, breaking system into sub systems identifying concurrency, allocation of subsystems, management of data storage, Handling Global resources, choosing a software control strategy, Handling boundary condition, common Architectural style.

UNIT–V **8 HOURS**

Class design: Overview of class design, designing algorithms recursing downward, refactoring, design optimization, Adjustment of Inheritance, Rectification of Behavior.

TEXT BOOKS:

1. Michael Blaha and J. Rumbugh, "Object oriented Modeling and design with UML", Pearson Education

REFERENCES:

1. Satzinger, Jackson and Burd, "Object oriented Analysis and design with the Unified Process", CENGAGE Learning.
2. O'Docherty, "Object Oriented Analysis and Design Understanding, System Development with UML2.0", Wiley India.

LIST OF EXPERIMENTS

1. How to write a Problem Statement
2. Perform the system analysis: Requirement analysis, SRS.
3. Perform the function oriented diagram: DFD and Structured chart.
4. Perform the user's view analysis: Use case diagram.

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5. Draw the structural view diagram: Class diagram, object diagram.
6. Draw the behavioral view diagram: Sequence diagram, Collaboration diagram.
7. Draw the behavioral view diagram: State-chart diagram, Activity diagram.
8. Draw the implementation view diagram: Component diagram.
9. Draw the environmental view diagram: Deployment diagram.

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BTCS603N	DCC	Introduction to Cloud Computing	60	20	20	30	20	3	0	2	4

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COURSE OBJECTIVES

The student will have ability to:

1. Analyze the SAAS, PAAS IAAS services of Cloud Computing to represent how engineering agility inan organization can becreated.
2. Assess the exploitation of web services from cloudcomputing.
3. Configure essential infrastructural components used for implementingCloud.
4. Significantly study case studies to derive the most excellent practice model to be appropriate when deploying cloud-basedapplications.

COURSE OUTCOMES

Upon completion of the course, students will be able to:

1. Investigate the trade-offs among deploying applications in the cloud and over the localinfrastructure.
2. Compute real-world problems security, privacy issues using cloud computing through group collaboration.
3. Development and Deployment applications over commercial cloud computinginfrastructures.
4. Analyze and investigation of application & hardware performance, scalability, and availability of the underlying cloud technologies andsoftware.

SYLLABUS

UNIT–I: **10 Hours**

Overview of Cloud Computing

Introduction- Evolution, Shift from distributed computing to cloud computing; principlesand characteristics of cloud computing- IaaS, PaaS, SaaS; service-orientedcomputing andcloudenvironment, Advantages, Service & Deployment Models, Infrastructure, and Consumer View, Functioning of Cloud Computing, Cloud Architecture, Cloud Storage, Cloud Services, Industrial Applications.

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UNIT–II: **8 Hours**

Cloud Computing Technology-

Client systems, Networks, server systems andsecurity from services perspectives, security and privacy issues; accessing the cloud with platforms and applications; Cloud storage

UNIT–III: **9 Hours**

Working with Cloud

Infrastructure as a Service – conceptual model and working, Platform as a Service – conceptual model and functionalities. Software as a Service –conceptual model and working.Trendsin Service provisioning with clouds.Working on Microsoft Azure & IBM SmartCloud.

UNIT–IV:

Using Cloud Services **9 Hours**

Cloud collaborative applications and services – case studieswith calendars, schedulers, and event management; cloud applications in project management. Amazon Web Services & applications, AWS EC2, S3, Cloud Analytics, Cloud Open Stack

UNIT–V: **8 Hours**

Case studies- Microsoft Azure, Google App Engine, IBM Smart Cloud and Open source clouds,- Open-Nebula, Sales force and Eucalyptus, Cloud Simulation

TEXT BOOKS:

1. Cloud Computing: A Practical Approach by Anthony T. Velte Toby J. Velte,RobertElsenpeter, 2010 by TheMcGraw-Hill.

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REFERENCES:

1. Kumar Saurabh, “Cloud Computing”, WileyPub,2012.
2. Krutz , Vines, “Cloud Security , WileyPub,2013.
3. Sosinsky, “Cloud Computing”, WileyPub,2012.
4. Murray Woodside; John Chinneck; Marin Litiou on “Adaptive Cloud Deployment UsingPersistence Strategies and Application Awareness”IEEEXplore, Year: 2017, Page(s):277 – 290.
5. Buyya, Selvi ,Mastering Cloud Computing,TMHPub.
6. Michael Miller, Cloud computing – Web based Applications, Pearson Publishing,2011

LIST OF PRACTICALS:

1. Service deployment & Usage over cloud using VirtualBox.
2. Performance evaluation of services over cloud using VMwaretool.
3. Working of Goggle Drive to makespreadsheet.
4. Working on Herokufor Cloud applicationdeployment.
5. Working on Anekasevices for Cloudapplication.
6. Working on services of Google AppEngine.
7. Working on Application deployment & services of MicrosoftAzure.
8. Working on Application deployment & services of IBM SmartCloud.
9. Working and configuration ofEuceliptus.
10. Deployment &Services of Amazon WebServices.

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BTDSE611N	DSE	Block Chain	60	20	20	0	0	3	0	0	3

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COURSE OBJECTIVES

The student will have ability to:

1. Provide conceptual understanding of how block chain technologycan be used to innovate and improve business processes.
2. Covers the technological underpinning of block Chain operations in both theoretical and practical implementation ofsolutions using block Chain technology.

COURSE OUTCOMES

Upon completion of the subject, students will be able to:

1. Understand block chain technology.
2. Develop block chain based solutions and write smart contract using Hyperledger Fabric andEthereum frameworks.
3. Build and deploy block chain application for on premise and cloud based architecture.
4. Integrate ideas from various domains and implement them using block chain technology indifferent perspectives.

SYLLABUS:

UNIT–I **10 Hours**

Introduction: Overview of Block chain, Public Ledgers, Bitcoin, Smart Contracts, Block in a Blockchain, Transactions, Distributed Consensus, Public vs Private Block chain, Understanding Cryptocurrency to Block chain, Permissioned Model of Block chain, Overview of Security aspects ofBlock chain.

Basic Crypto Primitives: Cryptographic Hash Function, Properties of a hash function, Hash pointerand Merkle tree, Digital Signature, Public Key Cryptography, A basic cryptocurrency.

UNIT–II **10 Hours**

Understanding Block chain with Crypto currency: Bitcoin and Block chain: Creation of coins, Payments and double spending, Bitcoin Scripts, Bitcoin P2P Network, Transaction in Bitcoin Network, Block Mining, Block propagation and block relay.

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Working with Consensus in Bitcoin**:** Distributed consensus in open environments, Consensus in a Bitcoin network, Proof of Work (PoW) – basic introduction, HashcashPoW, Bitcoin PoW, Attacks on PoW and the monopoly problem, Proof of Stake, Proof of Burn and Proof of Elapsed Time, The life of a Bitcoin Miner, Mining Difficulty, Mining Pool.

UNIT–III **9 Hours**

Understanding Block chain for Enterprises: Permissioned Block chain: Permissioned model and usecases, Design issues for Permissionedblock chains, Execute contracts, State machine replication, Overview of Consensus models forpermissioned block chain- Distributed consensus in closed environment, Paxos, RAFT Consensus,Byzantine general problem, Byzantine fault tolerant system, Lamport-Shostak-Pease BFTAlgorithm, BFT over Asynchronous systems.

UNIT–IV **8 Hours**

Enterprise application of Block chain: Cross border payments, Know Your Customer (KYC), FoodSecurity, Mortgage over Block chain, Block chain enabled Trade, We Trade – Trade FinanceNetwork, Supply Chain Financing, Identity on Block chain.

UNIT–V **8 Hours**

Block chain application development: Hyperledger Fabric- Architecture, Identities and Policies,Membership and Access Control,Channels, Transaction Validation, Writing smart contract usingHyperledger Fabric, Writing smartcontract using Ethereum, Overview of Ripple and Corda.

TEXT BOOKS:

1. Melanie Swan, “Block Chain: Blueprint for a New Economy”, O’Reilly, 2015.

REFERENCES:

1. Josh Thompsons, “Block Chain: The Block Chain for Beginners- Guide to Block chainTechnology and Leveraging Block Chain Programming”.
2. Daniel Drescher, “Block Chain Basics”, Apress; 1stedition, 2017.

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3. Anshul Kaushik, "Block Chain and Crypto Currencies", Khanna Publishing House, Delhi.
4. Imran Bashir, "Mastering Block Chain: Distributed Ledger Technology, Decentralizationand Smart Contracts Explained", Packt Publishing.
5. Ritesh Modi, "Solidity Programming Essentials: A Beginner's Guide to Build SmartContracts for Ethereum and Block Chain", Packt Publishing.
6. Salman Baset, Luc Desrosiers, Nitin Gaur, Petr Novotny, Anthony O'Dowd, Venkatraman.Ramakrishna, "Hands-On Block Chain with Hyperledger: Building Decentralized Applications with Hyperledger Fabric and Composer", Import, 2018

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BTDSE612N	DSE	**Robotics**	**60**	**20**	**20**	**0**	**0**	**3**	**0**	**0**	**3**

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COURSE OBJECTIVES
The objective of this course is to impart knowledge about industrial robots for their control and design.

COURSE OUTCOMES
Upon completion of the subject, students will be able to:
1. Perform kinematic and dynamic analyses with simulation.
2. Design control laws for a robot.
3. Integrate mechanical and electrical hardware for a real prototype of robotic device.
4. Select a robotic system for given application.

SYLLABUS
UNIT–I 8 Hours
Introduction to Robotics: Types and components of a robot, Classification of robots, closed-loop andopen-loopcontrol systems.
Kinematics systems; Definition of mechanisms and manipulators, Social issues andsafety.

UNIT–II 8 Hours
Robot Kinematics and Dynamics: Kinematic Modelling: Translation and Rotation Representation,Coordinatetransformation, DH parameters, Jacobian, Singularity, and StaticsDynamic Modelling: Equations of motion: Euler-Lagrange formulation

UNIT–III 9 Hours
Sensors and Vision System: Sensor: Contact and Proximity, Position, Velocity, Force, Tactile etc. Introductionto Cameras, Camera calibration, Geometry of Image formation,Euclidean/Similarity/Affine/Projective transformations. Vision applications in robotics.

UNIT–IV 8 Hours
Robot Control: Basics of control: Transfer functions, Control laws: P, PD, PID.Non-linear and advanced controls.

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UNIT–V **9 Hours**

Robot Actuation Systems: Actuators: Electric, Hydraulic and Pneumatic; Transmission: Gears,Timing Belts and Bearings, Parameters for selection of actuators.

Control Hardware and Interfacing: Embedded systems: Architecture and integration with sensors, actuators, components, Programming for Robot Applications.

TEXT BOOKS:

1. Saha, S.K., "Introduction to Robotics, 2nd Edition, McGraw-Hill Higher Education, NewDelhi, 2014.

REFERENCES:

1. Ghosal, A., "Robotics", Oxford, New Delhi, 2006.
2. Niku Saeed B., "Introduction to Robotics: Analysis, Systems, Applications", PHI, NewDelhi.
3. Mittal R.K. and Nagrath I.J., "Robotics and Control", Tata McGraw Hill.
4. Mukherjee S., "Robotics and Automation", Khanna Publishing House, Delhi.
5. Craig, J.J., "Introduction to Robotics: Mechanics and Control", Pearson, New Delhi,2009
6. Mark W. Spong, Seth Hutchinson, and M. Vidyasagar, "Robot Modelling and Control",John Wiley and Sons Inc, 2005
7. Steve Heath, "Embedded System Design", 2nd Edition, Newnes, Burlington, 2003.
8. Merzouki R., Samantaray A.K., Phathak P.M. and Bouamama B. Ould, "IntelligentMechatronic System: Modeling, Control and Diagnosis", Springer.

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SEMESTER-VI(2023-2027)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTDSE613M	DCE	**Internet Of Things**	**60-**	**20**	**20**	**0**	**0**	**3**	**0**	**0**	**3**

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;
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COURSE OBJECTIVES

1.Student should understand the value of Historical data and data mining in solving real-worldproblems.
2.Student should become affluent with the basic Supervised and unsupervised learning algorithms commonly used in data mining.
3.Student develops the skill in using data mining for solving real-world problems.

COURSE OUTCOMES

After completion of this course, the students would be able to:
CO1. Understand the need of Data Mining and will be enabled to approachbusiness problems analytically by identifying opportunities to derive business.
CO2. Compare and contrast, various methods for storing & retrieving data from different data sources/repository.
CO3. Ascertain the application of data mining in various areas and preprocess the given data and visualize it for a given application or data exploration/mining task.

Unit-I

Introduction to Data Mining, Need of Data Mining, Technologies Used for Data Mining, Major Issues in Data Mining, Data Mining Applications, Data Objects and Attribute Types, Basic Statistical Descriptions of Data, Measuring Data Similarity and Dissimilarity for data mining.

Unit-II

Data Preprocessing: An Overview, Data Cleaning, Data Reduction, Data Transformation and Data Discretization, Mining Frequent Patterns, Associations, and Correlations: Basic Concepts, Frequent Itemset Mining Methods, Apriori Algorithm.

Unit III

Classification: Basic Concepts, Decision Tree Induction, Bayes Classification Methods, Classification by Backpropagation, Support Vector Machines, Lazy Learners k-Nearest-Neighbour Classifiers.

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BTDSE613M	DCE	**Internet Of Things**	**60-**	**20**	**20**	**0**	**0**	**3**	**0**	**0**	**3**

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Unit IV

Cluster Analysis: Basic Concepts Partitioning Methods, k-Means: A Centroid-Based Technique, Hierarchical Methods, Agglomerative versus Divisive Hierarchical Clustering Density-Based Methods DBSCAN.

Unit V

Introduction to Data Visualization,Importance of Data Visualization, Benefits of good data visualization, Nature of Visualization, Data Visualization Techniques, Methods to Visualize Data,Data Visualisation with Python using Matplotlib and Seaborn, Box plot, Scatter Plot, Heat Maps,Correlation plot, Pie Chart.

TEXTBOOKS:

1. Pang – ningTan, Steinbach & Kumar, "Introduction to Data Mining", Pearson Edu, 2019.
2. Jaiwei Han, Micheline Kamber, "Data Mining: Concepts and Techniques", Morgan Kaufmann Publishers.

REFERENCES:

1. Margaret H. Dunham, "Data Mining: Introductory and Advanced topics", Pearson Edu., 2009.
2. Anahory& Murray, "Data Warehousing in the Real World", Pearson Edu., 2009.

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BTCS607N	**PW**	**Minor Project**	**0**	**0**	**0**	**60**	**40**	**0**	**0**	**4**	**2**

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Course Objectives:

This course is the masters by coursework Minor Project.
A Minor Project is a substantial work of supervised research or development, requiring the equivalent of about four to six months full-time work from start to finish. A Project involves identifying a task or problem, searching and reviewing relevant literature, a proposed, implemented, and critically analyzed solution to the task or problem, and a written report describing the problem, the relevant literature, the solution, and its relation to other work in the area.

Note: This course includes a work integrated learning experience in which your knowledge and skillswill be applied and assessed in a real or simulated workplace context and where feedback from industry and/ or community is integral to your experience.

COURSE OUTCOMES

This course contributes to the following program learning outcomes:

- **EnablingKnowledge:**

You will gain skills as you apply knowledge with creativity and initiative to new situations. In doing so, you will:

- Demonstrate mastery of a body of knowledge that includes recent developments in Information Technology
- Recognize and use research principles and methods applicable to InformationTechnology.

- **CriticalAnalysis:**

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BTCS607N	**PW**	**Minor Project**	**0**	**0**	**0**	**60**	**40**	**0**	**0**	**4**	**2**

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You will learn to accurately and objectively examine, and critically investigate Information Technology (IT) concepts, evidence, theories or situations, in particularto:

- analyze and model complex requirements and constraints for the purpose of designing and implementing software artifacts and ITsystems
- Evaluate and compare designs of software artifacts and IT systems on the basis of organizational and userrequirements.

- **ProblemSolving:**

Your capability to analyze complex problems and provide suitable solutions will be extended as you learn to: design and implement software solutions that accommodate specified requirements and constraints, based on analysis or modeling or requirements specification.

- **Communication:**

You will learn to communicate effectively with a variety of audiences through a range of modes and media, in particular to: interpret abstract theoretical propositions, choose methodologies, justify conclusions and defend professional decisions to both IT and non-IT personnel via technical reports of professional standard and technical presentations.

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Board of Studies	**Faculty of Studies**	**Shri Vaishnav Vidyapeeth**	**Shri Vaishnav Vidyapeeth**
Shri Vaishnav Vidyapeeth	**Shri Vaishnav Vidyapeeth**	**Vishwavidyalaya, Indore**	**Vishwavidyalaya, Indore**
Vishwavidyalaya, Indore	**Vishwavidyalaya, Indore**		

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- **Responsibility:**

You will be required to accept responsibility for your own learning and make informed decisions about judging and adopting appropriate behaviour in professional and social situations. This includes accepting the responsibility for independent life-long learning and a high level of accountability. Specifically, you will learn to: effectively apply relevant standards, ethical considerations, and an understanding of legal and privacy issues to designing software applications and IT systems.

- **Research andScholarship:**

You will have technical and communication skills to design, evaluate, implement, analyze and theorize about developments that contribute to professional practice or scholarship; specifically you will have cognitive skills:

- To demonstrate mastery of theoretical knowledge and to reflect critically on theory and professional practice or scholarship
- To plan and execute a substantial research-based project, capstone experience and/or piece of scholarship.

Course Learning Outcomes

Upon successful completion of this course you should be able to:

- Identify a task or problem relevant to /orIT
- Search and review of the relevantliterature

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BTCS607N	**PW**	**Minor Project**	**0**	**0**	**0**	**60**	**40**	**0**	**0**	**4**	**2**

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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- Propose a solution to the task orproblem
- Develop a software and/or algorithmic solution to the task orproblem
- Implement solutions to meet high quality requirements developed by thesupervisor
- Carry out research undersupervision
- Present the research in a written form like that used for publishedpapers
- Present the research in an oralseminar.

Overview of Learning Activities

A Minor project is a substantial work of supervised research or software development. You will choose an academic staff member as your supervisor to work on a research project. To successfully complete the course, you must demonstrate research skills: ability to undertake research under supervision, ability to analyze, develop, and present the research in a written form like that used for published papers, and ability to present the research in an oralseminar.

In this course, you are expected to carry out research activities including implementing a complete solution to the problems identified by the supervisor, critical analysis of results, and completing a written Project. The major deadline for this course is the delivery of the Minor Project by the end of the semester.

Overview of Assessment

You must satisfactorily complete each of the following assessment tasks for this course:

- Research project comprising an implemented and critically analyzed solution to the task or problem.

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- Written report (final Project) describing the problem, the relevant literature, the solution, and its relation to other work in thearea
- Seminar on your research (of 20 minutes) soon after your Project issubmitted.

The Minor Project is assessed on its merits as a research publication. Each Project is examined by two academics, usually from within the Institute.

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GEMOOC II	DCC	Generic MOOC II	0	0	0	0	0	0	0	0	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
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Chairperson Board of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	**Chairperson** Faculty of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	**Controller of Examination** Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	**Joint Registrar** Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore