

**Detailed syllabus**  
**Lecture-wise Breakup**

<b>Subject Code</b>	<b>15BINHS432</b>	<b>Semester: Even</b>	<b>Semester IV Session 2023-2024</b> <b>Months: from Jan. to June 2024</b>
<b>Subject Name</b>	<b>INTRODUCTION TO PSYCHOLOGY</b>		
<b>Credits</b>	<b>3</b>	<b>Contact Hours</b>	<b>(2-1-0)</b>
<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Badri Bajaj Dr. Shweta Verma	
	<b>Teacher(s) (Alphabetically)</b>	Dr. Badri Bajaj Dr. Shweta Verma	

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
<b>C206-6.1</b>	Demonstrate a basic understanding of different perspectives and concepts of psychology	Understanding (Level 2)
<b>C206-6.2</b>	Apply the concepts of psychology in day to day life	Applying (Level 3)
<b>C206-6.3</b>	Examine the different theoretical perspectives and models of psychology	Analyzing (Level 4)
<b>C206-6.4</b>	Develop solutions for problems related to psychology using appropriate tools/models	Creating (Level 6)

<b>Module No.</b>	<b>Subtitle of the Module</b>	<b>Topics in the module</b>	<b>No. of Lectures for the module</b>
<b>1.</b>	<b>Introduction to Psychology</b>	Definition, Nature, and Scope of Psychology; Approaches: Biological, Psychodynamic, Behaviorist, and Cognitive. Methods: Experimental, Observation and Case study; Fields of application.	<b>3</b>
<b>2.</b>	<b>Basic Concepts</b>	Person, Consciousness, Behavior and Experience, Perception and learning	<b>5</b>
<b>3.</b>	<b>Memory</b>	Process of Memory: Encoding, Storage, Retrieval; Stages of Memory: Sensory, Short term and Long term	<b>3</b>
<b>4.</b>	<b>Motivation</b>	Motives: Intrinsic and Extrinsic Frame Work, Theories of Motivation; Techniques of Assessment of Motivations; Frustration and Conflict.	<b>3</b>
<b>5.</b>	<b>Emotions</b>	Concept, Development, Expression, Theories of Emotions.	<b>2</b>
<b>6.</b>	<b>Intelligence</b>	Nature, Theories, Measurement and Approaches - Genetic and Environmental	<b>3</b>
<b>7.</b>	<b>Personality</b>	Nature, Approaches, Determinants and Theories; Techniques of Assessment: Psychometric and Projective Techniques.	<b>5</b>

8.	<b>Psychology of Adjustment</b>	Psychological Disorders: Anxiety, Stress, Depression; Psychotherapies.	4
<b>Total:</b>			<b>28</b>

**Evaluation Criteria**

Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 (Project, Assignment, Quiz)
<b>Total</b>	<b>100</b>

Project based learning: Students in a group will choose a research topic from the syllabi of psychology. Students will cover the following points to prepare project reports: Understanding of concept, related theories and perspectives; describe the relevance of the chosen concept for personal growth; discuss the application of chosen topic for their professional life; elaborate the relevance of the topic at group level and societal level. Discussions on these practical aspects will enhance students' understanding & application of concepts of psychology in day to day life.

<b>Recommended Reading material:</b> Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1.	R.A. Baron and G. Misra, Psychology, 5th Ed., Pearson, 2015
2.	S. Nolen-Hoeksema, B. L. Fredrickson, G. R. Loftus, and C. Luts, Introduction to Psychology, 16th Ed., Cengage Learning, 2014.
3.	S. K. Ciccarelli, J. N. White and G. E. Meyer, Psychology, Pearson, 6 <sup>th</sup> Ed., 2022.
4.	C. Morgan, R. King, J. Weisz, J. Schopler, Introduction to Psychology, 7 <sup>th</sup> Ed., McGraw Hill Education, 2017.
5.	S. Pandit, Introduction to Psychology, 1 <sup>st</sup> Ed., SAGE Publications; 2022
6.	G. Feist and E. Rosenberg, Psychology: Perspectives and Connections, 5th Ed., McGraw-Hill Education, 2021

**Detailed Syllabus**  
**Lecture-wise Breakup**

<b>Course Code</b>	15B1NHS433	<b>Semester</b> EVEN (specify Odd/Even)	<b>Semester IV Session</b> 2022 -2023 MonthJan2021- June2021
<b>Course Name</b>	INTRODUCTION TO SOCIOLOGY		
<b>Credits</b>	3(2-1-0)	<b>Contact Hours</b>	3

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Prof Alka Sharma
	<b>Teacher(s) (Alphabetically)</b>	Ms.Shikha Kumari

COURSE OUTCOMES		COGNITIVE LEVELS
C206-7.1	Demonstrate an understanding of sociological perspectives and concepts.	Remembering (C1)
C206-7.2	Explain the concept of social stratification and types of stratification as class, caste and gender.	Understanding (C2)
C206-7.3	Apply the major sociological perspectives, social concepts and methods in the systematic study of society	Applying(C3)
C206-7.4	Analyze the relevance of various social Institutions in societies and how it shapes and influences social interactions.	Analyzing (C4)

Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Introduction	Introduction to sociology as a discipline of social science, difference between common sense and sociology, Major sociological perspective and methods, the sociological imagination	5
2.	Basic Concepts of Sociology	Groups, sub-groups, society, characteristics of society, culture, institutions, Institutionalization, Conformity, Social Change	6
3.	Social stratification	Stratification-concept, theories and type. Basis of stratification caste, class, gender and race, status and Roles	5
4.	Sociology of Institutions	Kinship, Family ,Religion, Education &Economy in Society	6
5.	Process of Change and Mobility	Process of Social Change in Indian Society: Sanskritization, Westernization, Modernization, Urbanization	4
6.	Sociology of Collectivity	Collective Action and Social Movements	2
<b>Total number of Lectures</b>			<b>28</b>

Evaluation Criteria	
Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 (Project basedpresentation, assignment and quiz)
<b>Total</b>	<b>100</b>

The students will find out which aspect of Organizational culture influences the employee' performance and formulate recommendations regarding organizational culture, which will help the organization to be

more inclusive of different cultural practices of the employees (tackle issues such as gender equity, respect for other languages, reduce racial identity crisis, reduce class and caste discrimination, promote respect for all religions etc) to increase their belongingness towards the organization.

<b>Recommended Reading material:</b> Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1	Johnson, Harry M. <i>Sociology: a systematic introduction</i> . Routledge, 2013.
2	Rawat, H. K. <i>Sociology: basic concepts</i> . Rawat Publications, 2007.
3	Macionis, John J. <i>Society: the basics</i> . Pearson/Prentice Hall, 2009.
4	C. Wright. And Mills, <i>The Sociological Imagination</i> , Oxford: Oxford University Press, 1959.
5	Peter L Berger, <i>The Social Construction of Reality: a Treatise in the Sociology of Knowledge</i> . Garden City, New York: Anchor, 1966.
6	Conley and Dalton, <i>You May Ask Yourself: An Introduction to Thinking Like a Sociologist</i> , 2nd Ed, W. W. Norton & Company New York, 2011. ISBN: 0393935175 or 978-0393935172
7	Ballentine and Roberts, <i>Our Social World: Introduction to Sociology</i> , 4th Edition, Sage. 2013.
8	Robert Parkin and Linda Stone, (ed.). <i>Kinship and Family: An Anthropological Reader</i> , U.S.A.: Blackwell, 2000, selected chapters

**Detailed Syllabus**  
**Lecture-wise Breakup**

<b>Course Code</b>	15B1NHS434	<b>Semester:</b> Even	<b>Semester IV Session</b> 2023 -2024 <b>Month from</b> Jan 2024 to June 2024
<b>Course Name</b>	Principles of Management		
<b>Credits</b>	3	<b>Contact Hours</b>	2-1-0

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Aviral Mishra
	<b>Teacher(s) (Alphabetically)</b>	Dr. Aviral Mishra

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
C303-1.1	Describe the functions, roles and skills of managers and illustrate how the manager's job is evolving.	Understanding Level (C2)
C303-1.2	Examine the relevance of the political, legal, ethical, economic and cultural environments in global business.	Analyzing Level (C4)
C303-1.3	Evaluate approaches to goal setting, planning and organizing in a variety of circumstances.	Evaluating Level (C5)
C303-1.4	Evaluate contemporary approaches for staffing and leading in an organization.	Evaluating Level (C5)
C303-1.5	Analyze contemporary issues in controlling for measuring organizational performance.	Analyzing Level (C4)

<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for the module</b>
1.	Introduction to Managers and Management	Management an Overview: Introduction, Definition of Management, Role of Management, Functions of Managers, Levels of Management, Management Skills and Organizational Hierarchy, Social and Ethical Responsibilities of Management: Arguments for and against Social Responsibilities of Business, Social Stakeholders, Measuring Social Responsiveness and Managerial Ethics, Omnipotent and Symbolic View, Characteristics and importance of organizational culture, Relevance of political, legal, economic and Cultural environments to global business, Structures and techniques organizations use as they go international .	7
2.	Planning	Nature & Purpose, Steps involved in Planning, Objectives, Setting Objectives, Process of Managing by Objectives, Strategies, Policies & Planning Premises, Competitor Intelligence, Benchmarking, Forecasting, Decision-Making.	5
3.	Organizing	Organizing ,Benefits and Limitations-De-Centralization and Delegation of Authority, Authority versus Power ,Mechanistic Versus Organic Organization ,Common Organizational Designs, Contemporary Organizational Designs and Contingency Factors, The Learning Organization Nature and Purpose, Formal and Informal Organization, Organization Chart, Structure and Process, Departmentalization by difference strategies, Line and Staff authority- Benefits and Limitations-De-Centralization and Delegation of Authority Versus, Staffing ,Human Resource	7

		Inventory, Job Analysis , Job Description, Recruitment and Selection, Selection Tools Staffing, Managerial Effectiveness, Staffing, Training, Employee Performance Management, Compensation and Benefits, Contemporary Issues in Managing Human Resources .	
4.	Directing	Scope, Human Factors, Creativity and Innovation, Harmonizing Objectives, Leadership, Types of Leadership, Directing, Managers as leaders, Early Leadership Theories... Trait Theories, Behavioral Theories, Managerial Grid, Contingency Theories of Leadership, Directing ... Path Goal Theory, contemporary views of Leadership, Cross Cultural Leadership, Leadership Training, Substitutes of Leadership	4
5.	Controlling	Controlling, Introduction to Controlling System and process of Controlling, Requirements for effective control, The planning Control link, The process of control, types of control The Budget as Control Technique, Information Technology in Controlling, Productivity, Problems and Management, Control of Overall Performance, Direct and Preventive Control, Financial Controls , Tools for measuring organizational Performance , Contemporary issues in control Workplace concerns, employee theft, employee violence	5
<b>Total number of Lectures</b>			<b>28</b>

#### Evaluation Criteria

Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 (Project, Attendance)
<b>Total</b>	<b>100</b>

**Project Based Learning:** The project is to be done in group size of 4-5 members each. Student groups can choose an organization from one of the following themes- Staffing and Controlling in a virtual world, Staffing and controlling in the Banking Sector, Staffing and Controlling and the IT industry, Staffing and Controlling in Hospitality/Telecom/Airlines, Staffing and Controlling in Logistics, Staffing and Controlling in International Business and Staffing and Controlling in Consulting. Study the staffing and controlling processes of the chosen organization. Students were asked to submit their research analysis in the form of a project report. This adds to the management related employability skills in an organization as staffing and controlling are important aspects of overall management function.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	Koontz H, Weihrich H. Essentials of management: an international, innovation, and leadership perspective. McGraw-Hill Education; 10 <sup>th</sup> Edition 2018.
2.	Tripathi PC. Principles of management. Tata McGraw-Hill Education; 6 <sup>th</sup> Edition 2017.
3.	Principles of Management Text and Cases, Pravin Durai , Pearson ,2015
4.	Robbins, S.P. & Decenzo, David A. Fundamentals of Management, 7 <sup>th</sup> ed., Pearson, 2010
5.	Robbins, S.P. & Coulter, Mary Management; 14 ed., Pearson , 2009

**Detailed Syllabus**  
**Lecture-wise Breakup**

<b>Course Code</b>	15B1NHS435	<b>Semester:</b> Even	<b>Semester Session:</b> 2023-24 <b>Month from:</b> Jan-June 2023
<b>Course Name</b>	Financial Accounting		
<b>Credits</b>	3	Contact Hours	3 (2-1-0)

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Sakshi Varshney (Sec-128) &Dr. Purwa Srivastava (Sec 62)
	<b>Teacher(s) (Alphabetically)</b>	Dr. Purwa Srivastava & Dr. Sakshi Varshney

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
<b>C206-8.1</b>	Understand the basic concepts of Accounting.	Understanding level (C2)
<b>C206-8.2</b>	Apply accounting concepts for recording of business transactions.	Applying level (C3)
<b>C206-8.3</b>	Compare and reconcile the accounting records with other sources of information.	Analyzing level (C4)
<b>C206-8.4</b>	Evaluate the accounting records to identify and rectify the errors made during accounting process.	Evaluating level (C5)
<b>C206-8.5</b>	Construct the final accounts and cash flow statement of a business.	Creating (C6)

<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for the module</b>
<b>1.</b>	Introduction to Accounting	Meaning of Accounting, Objectives of Accounting, Understanding Company Management, Stakeholders versus Shareholders, Financial Reporting Standards, Financial Reporting	2
<b>2.</b>	Understanding Accounting Elements	Elements of Financial Statements- Assets, Current assets, Liabilities, Current liabilities, Equity, Income, Expenses, Accounting Equation	2
<b>3.</b>	Accounting Concepts	Business entity concept, Money measurement concept, Going concern, Consistency, Matching concept, Cost concept, Dual aspect concept, Materiality, Full disclosure, Generally Accepted Accounting Principles (GAAP)	2
<b>4.</b>	Journal Transactions	Journal, Rules of Debit and Credit, Compound Journal entry, Opening entry	2
<b>5.</b>	Ledger Posting and Trial Balance	Ledger, Posting, relationship between Journal and Ledger, Rules regarding Posting, Trial balance	3

6.	Rectification of Errors	Different types of errors, their effect on trial balance, rectification and preparation of suspense account	5
7.	Bank Reconciliation Statement	Meaning of Bank Reconciliation Statement, technique of preparing BRS, Causes of difference	2
8.	Final Accounts	Trading account, Profit and Loss account, Balance sheet, Adjustment entries	6
9.	Cash Flow Statement	Introduction of Cash Flow Statement, Classification of Cash inflows and Cash Outflows Activities, Elements of the Cash Flow Statement, Methods of Cash Flow Statement, Limitations Of Cash Flow Statement	4
<b>Total number of Lectures</b>			<b>28</b>

### Evaluation Criteria

Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 (Project+ Class test/Quiz+ Class Participation)
<b>Total</b>	<b>100</b>

**Project Based learning:** Students form a group of 4-5 students. Each group is required to choose a company listed in Indian stock exchange and download its latest annual report. Students are required to describe the company, composition of board of directors, number of company's executives, independent directors, and background of independent directors. They are required to find out financing, investing and operating activities and examine the change in total assets, sales and net profit of the company. As per auditor's report, company's position and future plans for growth of the company is also analyzed.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	Maheshwari, S. N., Maheshwari, S.K. Maheshwari, S.K., Financial Accounting, 6 <sup>th</sup> Ed., S. Chand & Sons Publication, 2018.
2.	Narayanswamy, R., Financial Accounting: A Managerial Perspective, 7 <sup>th</sup> Ed., Taxmann Publications, 2017
3.	Tulsian,P., Financial Accounting,2 <sup>nd</sup> Ed., Pearson Education India,2017
4.	Bhattacharya, A., Financial Accounting for Business Managers, 5 <sup>th</sup> Ed., Prentice Hall of India,2016
5.	Weygandt.J., Kimmel, P., Kieso,D., Accounting Principles, 12th Edition, John Wiley & Sons,2015
6.	Barton,M., Bhutta, P.,S. O'Rourke,J.,Satyam Computer Services Ltd: Accounting fraud in India,London,SAGE Publications Ltd, 2017
7.	Lal,J.,Srivastava,S., Financial Accounting : Principles and Practices, 1 <sup>st</sup> Edition., S. Chand & Sons Publication, 2006.



**Detailed Syllabus**  
**Lecture-wise Breakup**

<b>Course Code</b>	15B11CI313	<b>Semester EVEN</b> (specify Odd/Even)	<b>Semester Fourth Session</b> 2023-2024 <b>Month from</b> Jan –May 2024
<b>Course Name</b>	Computer Organization and Architecture		
<b>Credits</b>	4 (L=3, T=1)	<b>Contact Hours</b>	3-1-0

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr.Pawan Kumar Upadhyay
	<b>Teacher(s) (Alphabetically)</b>	Dr.Pawan Kumar Upadhyay

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
<b>C213.1</b>	Summarize and Classify the different computer systems based on RISC and CISC Architecture.	(Understand)Level 2
<b>C213.2</b>	Apply the knowledge of performance metrics to find the performance of systems.	(Apply) Level 3
<b>C213.3</b>	Examining various types of computers based on Instruction Set Architectures.	(Apply)Level 3
<b>C213.4</b>	Analyze RISC and CISC based systemdesigns for Hardwired and Microprogrammed Controller.	(Analyze) Level 4
<b>C213.5</b>	Apply the knowledge of pipeline, IO and cache to understand these systems. Further, analyze the performance of such systems.	(Analyze) Level 4
<b>C213.6</b>	Create and analyze an assembly language program of RISC and CISC-based systems.	(Evaluate) Level 5

<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for module</b>
1.	Introduction	Levels in architecture, Virtual machine, Evolution of multi-level machines.	2
2.	Performance of Computer	Introduction,Performance Measures For Computer System using MIPS, Clock Rate, No. of Instruction andAmdahl's Law. Numerical Related to performance measures for different specification.	4
3.	CPU Organization	Basic Computer Organization, Instruction Representation basics,Data-path and control, Instruction execution, Microinstruction.	4
4.	Data Path and Control	Introduction,Architecture of JC62, Instruction Set,Hardwired designing for JC62. Micro-programmed control designing for JC62.	4

5.	Generalized Study of Instruction Set Architecture	Stack/accumulator/register-register/register-memory type of architecture. Memory addressing techniques.	2
6.	Types of Instruction	Data movement, Arithmetic/logic, Control flow, Addressing modes. Instruction format.	2
7.	Instruction Set Architecture (ISA) of 8085	8085 Architecture, 8085 Instruction Set, 8085 Instruction Format, 8085 Addressing Modes, 8085 instruction execution and datapath. 8085 Assembly programming for simple applications.	5
8.	ISA of MIPS	MIPS Architecture, MIPS Instruction Set, MIPS Instruction Format, MIPS Addressing Modes, MIPS instruction execution and datapath. MIPS Assembly programming for simple applications.	5
9.	Memory Organization	Hierarchical memory structure, Cache memory and organization, Cache Mapping, Cache Replacement algorithms, Memory interfacing for 8085.	5
10.	I/O Organization	IO instruction format, IO Mapping, Programmed/Interrupt driven I/O, DMA controllers	3
11.	Pipelining	Introduction To Pipelining System, Pipelining in RISC based Systems (MIPS), Pipeline Hazards and its solutions.	5
12.	Multicore Architecture	Generalized study of Multicore Machines.	1
<b>Total number of Lectures</b>			<b>42</b>

#### Evaluation Criteria

##### Components

##### Maximum Marks

T1	20
T2	20
End Semester Examination	35
TA	25 (Attendance =10, Sincerity=05, Internal assessment/ Class Test or/and Quizzes/Mini-Project = 10).
<b>Total</b>	<b>100</b>

Project-based learning: In this subject, students will learn the Organization and Architecture of the different computer systems. After completing the subject, students can measure the performance of different computer systems. They can create low bit assembler applications. Along with this, they will be able to interface memory with different architectures like 8085 and MIPS.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Textbooks, Reference Books, Journals, Reports, Websites etc., in the IEEE format)

#### Text Books

1.	M. Morris Mano, Computer System Architecture, Prentice Hall of India Pvt Ltd, 3 <sup>rd</sup> Edition (updated), 30 June 2017.
2.	William Stallings, Computer Organization and Architecture–Designing for Performance, Ninth

	Edition, Pearson Education, 2013.
<b>3.</b>	John L. Hennessy and David A Patterson, Computer Architecture A Quantitative Approach, Morgan Kaufmann / Elsevier, Sixth Edition, 23rd November 2017
<b>4.</b>	Ramesh Gaonkar, Microprocessor Architecture Programming and Applications with the 8085, Prentice Hall, Eight Edition, 2013.
<b>Reference Books</b>	
<b>1.</b>	Nicholas Carter, Schaum's outline of Computer Architecture, Tata McGraw Hill, Second Edition, 2014.

### Detailed Syllabus

<b>Course Code</b>	15B11CI373	<b>Semester EVEN</b> (specify Odd/Even)	<b>Semester 4<sup>th</sup></b> <b>Session 2023-2024</b> Month from Jan to June 2024
<b>Course Name</b>	Computer Organization and Architecture Lab		
<b>Credits</b>	1	<b>Contact Hours</b>	2

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Amarjeet Kaur(J62)
	<b>Teacher(s)</b> (Alphabetically)	Amarjeet Kaur, Pawan Upadhyay

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
<b>C273.1</b>	Realizing basic 2-bit and 4-bit ALU using hardwired simulation tool	Understand (Level 2)
<b>C273.2</b>	Initialization and fetching of data from specific memory using various addressing mode of 8085	Understand (Level 2)
<b>C273.3</b>	Experiments to use the software interrupts and various assembler directives for 8085 programming.	Apply (Level 3)
<b>C273.4</b>	Demonstrate to use the software interrupts and various assembler directives for MIPS programming.	Apply (Level 3)
<b>C273.5</b>	Design of a basic systems using RISC/CISC architecture based processor and to develop applications using microprocessor or microcontrollers.	Create (Level 6)

<b>Module No.</b>	<b>Title of the Module</b>	<b>List of Experiments</b>	<b>CO</b>
<b>1.</b>	COA Hardwired simulation tool	Realize the truth table of various gates like as AND, OR, NOT, XOR, NAND and NOR., Conversion of universal gates, Design the half adder and full adder circuits, Ripple adder logic circuit, 4 x1 multiplexor circuit and realize the various input output logic based on control, 4X1 multiplexor with NAND gates logic circuits	<b>C273.1</b>
<b>2.</b>	Combinational circuits	Design the subtractor circuits with defined bit logic, Adder-subtractor logic circuits, The odd frequency divider circuits, Carry lookup adder, Carry select and carry save, Adder circuits by modifying the ripple carry adder logic given in module-1., Timing diagram of all four adder circuits and compare their performance, Decoder circuits with defined logic, 4-bit ALU circuits with defined operation logic.	<b>C273.1</b>

3.	8085 Simulator Introduction	Understanding Hardware Specification of the <b>8085 Simulator</b> in detail, Add two 8-bit numbers from load sample program from file menu, assemble and execute it step by step and view the contents of registers and memory., Basic Data transfer instructions, Arithmetic instructions, Logical instruction of 8085 using sample programs with note changes in flags.	<b>C273.2</b>
4.	8085 Programming (Simple)	8085 Assembly Programming: Basic Arithmetic (like addition, subtraction, multiplication, division etc), Array (sum , reverse, average copy etc) etc and explore more about Arithmetic , Logical and Flow control Instructions	<b>C273.2</b>
5.	8085 Programming (Complex)	8085 Assembly Programming: Logical and Data transfer (like Min, Max, Even/odd, Sorting etc), more complex program (like Factorial, Link list etc) , String etc and explore more about Arithmetic, Logical and Flow control Instructions	<b>C273.2</b>
6.	MIPS(MARS) Simulator (Simple)	MIPS Assembly Programming: Arithmetic (like addition, subtraction, multiplication, division etc), Logical and Data transfer (like Min, Max, Even/odd, Sorting etc), Array (sum , reverse, average copy etc)	<b>C273.3</b>
7.	MIPS(MARS) Simulator (Complex)	Complex program (Factorial, Fibonacci etc), String Operations, Translation of C control statement into MIPS( IF THEN ELSE, WHILE, FOR LOOP, SWITCH control, ) and explore more about Arithmetic, Logical, Flow control Instructions using MARS Simulator.	<b>C273.4</b>
8.	Projects	Students are expected to create an hardware and software co-designed application based on 8085/ 8086/ MIPS/ Other controller (like Arduino) / Small Size computer (like Raspberry Pi ) programming either in assembly or high level language.	<b>C273.5</b>

Project based learning: Project in COA lab is an integral part of the lab. Student form group size 3-4, and discuss the project idea with their lab faculty before finalizing. All projects are based on hardware and hardware components like microprocessor microcontrollers (like Arduino), microcomputer (like Raspberry pi), various sensors (like temperature sensor, humidity sensor etc), cams (like webcam), etc. are used. Programming language is used as per processor/controller. Students develop projects/prototypes to interact with physical environment, control physical object with software which is base of IoT and embedded system. Students learn various processor architecture as well as their programming languages. This helps students to understand how to develop IoT based products and embedded systems.

<b>Evaluation Criteria</b>	
<b>Components</b>	<b>Maximum Marks</b>
<b>Evaluation 1</b>	<b>10</b>
<b>Lab Test 1</b>	<b>20</b>
<b>Evaluation 2</b>	<b>10</b>
<b>Lab Test 2</b>	<b>20</b>
<b>Project</b>	<b>25</b>

<b>Attendance</b>	<b>15</b>
<b>Total</b>	<b>100</b>

<b>Recommended Reading material:</b> Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
<b>Text Book</b>	
<b>1.</b>	William Stallings, Computer Organization and Architecture–Designing for Performance, 9th Edition, Pearson Education, 2013.
<b>2.</b>	Nicholas Carter, Schaum’s outline of Computer Architecture, Tata McGraw Hill, 2017
<b>3.</b>	John L. Hennessy and David A Patterson, Computer Architecture A quantitative Approach, Morgan Kaufmann / Elsevier, Sixth Edition, 2017
<b>Reference Book</b>	
<b>1.</b>	Microprocessor Architecture Programming and Applications with the 8085 [HB]-6/e. 25 September 2014. by Ramesh Gaonkar .
<b>2.</b>	The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro-Processor, Pentium II, Pentium III, Pentium 4, and Core2 with 64-bit Extensions : Architecture, Programming, and Interfacing. Barry B. Brey, Pearson Education India, 2009.
<b>3.</b>	<a href="http://nptel.ac.in/courses/Webcourse-contents/IIT-%20Guwahati/comp_org_arc/web/">http://nptel.ac.in/courses/Webcourse-contents/IIT-%20Guwahati/comp_org_arc/web/</a>
<b>4.</b>	<a href="http://cs.nyu.edu/~gottlieb/courses/2010s/2011-12-fall/arch/class-notes.html">http://cs.nyu.edu/~gottlieb/courses/2010s/2011-12-fall/arch/class-notes.html</a>
<b>5.</b>	<a href="http://www.cse.iitm.ac.in/~vplab/courses/comp_org/LEC_INTRO.pdf">http://www.cse.iitm.ac.in/~vplab/courses/comp_org/LEC_INTRO.pdf</a>
<b>6.</b>	<a href="http://www.cs.iastate.edu/~prabhu/Tutorial/title.html">http://www.cs.iastate.edu/~prabhu/Tutorial/title.html</a>
<b>7.</b>	<a href="http://www.cag.csail.mit.edu/">http://www.cag.csail.mit.edu/</a>
<b>8.</b>	<a href="http://www.research.ibm.com/compsci/arch">http://www.research.ibm.com/compsci/arch</a>
<b>9.</b>	M. Morris Mano, Computer System Architecture, Prentice Hall of India Pvt Ltd, Fourth edition, 2002. ISBN: 81-203-0855-7.

## Probability and Random Processes (15B11MA301)

Conditional probability, Bayes theorem, random variables, probability and cumulative density functions, MGF and CF, joint, marginal and conditional distributions, probability distributions, Bernoulli, Binomial, Poisson, Negative binomial, Geometric distributions. Uniform, Exponential, Normal, Gamma, Earlang, Weibull distributions, reliability, MTTF, system reliability, random processes, averages, stationary processes, random walk, Wiener process, semi-random telegraph signal process, ergodic processes, PSDF, Poisson processes, Markov chains.

### Course Description

<b>Course Code</b>	15B11MA301	<b>Semester</b> Even	<b>Semester IV Session</b> 2023-2024 <b>Month from</b> Jan 2024- May 2024
<b>Course Name</b>	Probability and Random Processes		
<b>Credits</b>	4	<b>Contact Hours</b>	3-1-0
<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Manish Kumar Bansal, Dr. Kamlesh Shukla	
	<b>Teacher(s) (Alphabetically)</b>	Dr. Bhagwati Prasad Chamola, Dr. Nisha Shukla, Dr. Aradhana Narang, Dr. Lakhveer Kaur, Dr. Kamlesh Shukla, Dr. Manish Kumar Bansal, Dr. Gaurav Agarwal, Dr. Shikha Pandey, Dr. Shashank Goel, Dr. Amita Bhagat, Dr. Sarfraz, Dr. Neha Ahlawat	
<b>COURSE OUTCOMES:</b>			<b>COGNITIVE LEVELS</b>
After pursuing the above mentioned course, the students will be able to:			
<b>C201.1</b>	recall the concepts of probability theory and probability distributions.	Remembering Level (C1)	
<b>C201.2</b>	explain random variables, probability distributions and reliability models.	Understanding Level (C2)	
<b>C201.3</b>	solve the problems concerning random variables, their distributions, reliability models and random processes.	Applying Level (C3)	
<b>C201.4</b>	examine random process models and solve the related problems.	Analyzing Level (C4)	
<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for the module</b>
1.	Probability	Three basic approaches to probability, conditional probability, total probability theorem, Bayes' theorem.	5
2.	Random Variables	One dimensional random variables (discrete and continuous), distribution of a random variable (density function and cdf). MGF and characteristic function of a random variable and its utility. Bivariate random variable, joint, marginal and conditional distributions, covariance and correlation.	8
3.	Probability Distributions	Bernoulli, binomial, Poisson, negative binomial, geometric distributions. Uniform, exponential, normal, gamma, Earlang and Weibull distributions.	8

4.	Reliability	Concept of reliability, reliability function, hazard rate function, mean time to failure (MTTF). Reliability of series, parallel, series-parallel, parallel-series systems.	6
5.	Random Processes I	Introduction, Statistical description of random processes, Markov processes, processes with independent increments. Average values of random processes. Strict sense and wide sense stationary processes, their averages. Random walk, Wiener process. Semi-random telegraph signal and random telegraph signal process. Properties of autocorrelation function.	7
6.	Random Processes II	Ergodic processes. Power spectral density function and its properties. Poisson processes. Markov chains and their transition probability matrix (TPM).	8
<b>Total number of Lectures</b>			<b>42</b>
<b>Evaluation Criteria</b>			
<b>Components</b>		<b>Maximum Marks</b>	
T1		20	
T2		20	
End Semester Examination		35	
TA		25 (Quiz, Assignments, Tutorials)	
<b>Total</b>		<b>100</b>	
<b>Project based learning:</b> Each student in a group of 4-6 will apply the concept of probability distributions of random variables and reliability models arising in different real-life situations.			
<b>Recommended Reading material:</b> Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)			
1.	<b>Veerarajan, T.,</b> Probability, Statistics and Random Processes, 3 <sup>rd</sup> Ed. Tata McGraw-Hill, 2008.		
2.	<b>Papoulis, A. &amp; Pillai, S.U.,</b> Probability, Random Variables and Stochastic Processes, Tata McGraw-Hill, 2002.		
3.	<b>Ross, S. M.,</b> Introduction to Probability and Statistics for Engineers and Scientists, 4th Ed., Elsevier, 2004.		
4.	<b>Palaniammal, S.,</b> Probability and Random Processes, PHI Learning Private Limited, 2012.		
5.	<b>Prabha, B. and Sujata, R.,</b> Statistics, Random Processes and Queuing Theory, 3rd Ed., Scitech, 2009.		

### CO-PO-PSO mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
C201.1	1	2	1	1								2		
C201.2	2	2	2	1								2		
C201.3	3	2	3	2					1			2		
C201.4	3	3	3	2								2		
<b>Avg</b>	<b>2.30</b>	<b>2.30</b>	<b>2.30</b>	<b>1.50</b>					<b>1.00</b>			<b>2.00</b>		





**Detailed Syllabus**  
**Lecture-wise Breakup**

<b>Course Code</b>	18B11EC213	<b>Semester</b> Even	<b>Semester IV Session</b> 2023-24 <b>Month from</b> Jan-June
<b>Course Name</b>	DIGITAL SYSTEMS		
<b>Credits</b>	4	<b>Contact Hours</b>	3+1

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Priyanka Kwatra, Dr. Vishal Narain Saxena
	<b>Teacher(s) (Alphabetically)</b>	Dr. Mandeep Narula, Dr. Megha Agarwal, Mr. Prabhanshu Yadav, Dr. Priyanka Kwatra, Dr. Shradha Saxena, Dr. Vimal Kumar Mishra, Dr. Vishal Narain Saxena

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
<b>CO1</b>	Understand the fundamentals of number system, Boolean algebra and Boolean function minimization techniques.	Understanding Level (C2)
<b>CO2</b>	Applying the concepts of Boolean algebra to implement combinational circuits and flip flops using logic gates.	Applying Level (C3)
<b>CO3</b>	Analyze state diagram and construct sequential logic circuits using flip flops. Also, classify the signals & systems and analyse the signals using Fourier transform.	Analyzing Level (C4)
<b>CO4</b>	Determine the various steps involved in the digitization and transmission of signals and evaluate their performance parameters.	Evaluating Level (C5)

<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for the module</b>
1.	Number systems and Combinational Circuits	Number systems (Binary, Octal, Hexadecimal) conversion, BCD numbers, gray code, excess-3 code. Binary addition and subtraction, signed and unsigned binary numbers, 1's and 2's complement representation. Boolean Theorem, Canonical Forms: SOP & POS Karnaugh Map, Quine-McCluskey method, Prime Implicants, Essential Prime implicants Introductions to Logic gates, Adder, Subtractor, Multiplexer, Demultiplexer, Encoder, Decimal to BCD Encoder, Decoder, Comparator	12
2.	Flip Flops	SR, JK, Master Slave JK, T And D; Excitation Tables, Conversion of Flip-Flops	3
3.	Counters	Synchronous and Asynchronous Counters, Design of Counters Using Flip- Flops, Registers, Shift Registers, Counters Using Shift Registers; State Diagram Design, Analysis of Sequential Circuits Using Flip-Flops	9
4.	Signals and systems	Signals and classification of signals: Continuous time and discrete time, Even and odd, periodic and non-periodic, Energy and Power signals, Basic signals: unit impulse, unit step and unit ramp. Basic operations of signals: time scaling, time-shifting, etc. Systems and classification of systems: continuous and discrete, Linear and non-linear, causal and non-causal.	5
5.	Fourier Analysis	Fourier Series, Fourier Transform Fourier Transform pair of standard signals and properties of Fourier transform.	3
6.	Sampling and Pulse code modulation	Introduction to Modulation, Need of Modulation, Analogue Modulation techniques, Sampling theorem, Nyquist rate and Nyquist interval. Quantization (Mid-rise and Mid-tread)	7

7.	Digital modulation techniques and Line coding	PCM (modulator and demodulator), Transmission bandwidth in PCM, Signal to quantization noise ratio of PCM. ASK, FSK and PSK modulation techniques.	3
		<b>Total number of Lectures</b>	<b>42</b>

**Evaluation Criteria**

Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 (Assignment = 10, Quiz = 5, Attendance = 10 )
<b>Total</b>	<b>100</b>

**Program Based Learning:** Students will be able to design and implement the projects using decoders, comparators and multiplexers. Designing of new flip flops, counters and shift registers enhance the application ability in students. Analog to digital signal transmission techniques and several digital communication techniques develop latest knowledge for wireless communication based Industries.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	S. Salivahanan, and S. Arivazhagan, "Digital circuits and design", Vikas publishing house PVT Limited. Fifth edition (March 2018)
2.	Oppenheim, Alan V., Alan S. Willsky, and Syed Hamid Nawab. "Signals and Systems," Prentice-Hall Englewood Cliffs 2 edition (2015)
3.	S. Haykin, "Digital Communications Systems", John Wiley & Sons, 1 edition, 2013
4.	H. Taub & D. L. Schilling, "Principles of Communication Systems", 2nd edition, McGraw-Hill Higher Education. 3 edition (September 2007)

## Course Description

<b>Course Code</b>	18B15EC213	<b>Semester -:</b> Even (specify Odd/Even)	<b>Semester-:IV, Session</b> 2023 -2024 <b>Month- :</b> Jan-June
<b>Course Name</b>	Digital Systems Lab		
<b>Credits</b>	1	<b>Contact Hours</b>	2
<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Shradha Saxena, Dr. Bajrang Bansal	
	<b>Teacher(s)</b>		

<b>COURSE OUTCOMES (New)</b>		<b>COGNITIVE LEVELS</b>
<b>CO1</b>	Recall the basics concepts of digital electronics with implementation of basic logic gates.	Remembering Level (C1)
<b>CO2</b>	Classify and explain different combinational and sequential digital circuits with their MATLAB implementation.	Understanding Level (C2)
<b>CO3</b>	Apply the coding skills of MATLAB and develop different concepts of signals & systems and digital signal processing.	Applying Level (C3)
<b>CO4</b>	Analyze the performance of basic digital modulation techniques.	Analyzing Level (C4)

<b>Module No.</b>	<b>Title of the Module</b>	<b>List of Experiments</b>	<b>COs</b>
1.	Introduction to basic logic gates	Verification of truth tables of basic logic gates and their realization using universal logic gates using Matlab	CO1
2.	Basics of adder and subtractor circuits	Design and simulate half adder, half subtractor, full adder, and full subtractor using Matlab	CO2
3.	Decoder logic circuits	Design and simulation of 2:4 decoder and 3:8 decoder using Matlab.	CO2
4.	Multiplexer logic circuits	Design and simulation of 2-to-1, 4-to-1, and 8-to-1 multiplexers using Matlab	CO2
5.	Introduction to sequential circuit: SR-Latch, D and JK Flip Flop	(a) Realization of SR Latch using Matlab. (b) Realization of D flip flop using Matlab. (c) Realization of JK flip flop using Matlab	CO2
6.	Continuous time and discrete time signals	Write Matlab programs for the generation of elementary continuous time signals and discrete time signals.	CO3
7.	Sampling and reconstruction process	Write Matlab program to study the sampling and reconstruction process.	CO3

8.	Quantization process of the signals.	Write Matlab program to study the quantization process of sinusoid signals.	CO3
9.	Introduction to Discrete Fourier Transform (DFT) and Inverse Discrete Fourier Transform (IDFT)	Write Matlab programs to compute Discrete Fourier Transform (DFT) and Inverse Discrete Fourier Transform (IDFT) for the spectral analysis of signals.	CO4
10.	Digital Modulation Techniques	Write Matlab programs to study the binary phase shift keying and frequency shift keying modulation process. Keying and frequency shift keying modulation process.	CO4
11	Virtual Experiment1	Design and Simulate Various Code Converters <a href="https://he-coep.vlabs.ac.in/exp/various-code-converters/index.html">https://he-coep.vlabs.ac.in/exp/various-code-converters/index.html</a>	CO1
12	Virtual Experiment2	Design and simulation of Decoders, Encoders, Multiplexer and Demultiplexer. <a href="https://he-coep.vlabs.ac.in/exp/decoders-encodersmultiplexer-demultiplexer/index.html">https://he-coep.vlabs.ac.in/exp/decoders-encodersmultiplexer-demultiplexer/index.html</a>	CO2

### Evaluation Criteria

Components	Maximum Marks
Mid Term Viva	20
End Term Viva	20
Report file, Attendance, and D2D	60
<b>Total</b>	<b>100</b>

**Project based learning:** Students will learn about Combinational and Sequential logic circuits and design them using open source software Matlab. Additionally, students in group sizes of two-three will realize various applications of Digital Systems employing these circuits.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	Salivahanan, S., and S. Arivazhagan. Digital circuits and design. Vikas publishing house PVT Limited. Fifth edition (March 2018)
2.	Oppenheim, Alan V., Alan S. Willsky, and Syed Hamid Nawab. "Signals and Systems", Prentice-Hall Englewood Cliffs 2 edition (2015)
3.	S. Haykin Digital Communications Systems John Wiley & Sons, 1 edition, 2013
4.	H. Taub & D. L. Schilling, Principles of Communication Systems, 2nd edition, McGraw-Hill Higher Education. 4th edition (2012)

### Detailed Syllabus

<b>Course Code</b>	19B12HS412	<b>Semester:</b> Even	<b>Semester IVth Session</b> 2023-24 <b>Month from January to June</b>
<b>Course Name</b>	Industrial Economics		
<b>Credits</b>	03	<b>Contact Hours</b>	2-1-0

<b>Faculty(N ames)</b>	<b>Coordinat or(s)</b>	Dr. Amba Agarwal, & Dr. Neha Singh	
	<b>Teacher(s) (Alphabetic ally)</b>	Dr. Amba Agarwal, & Dr. Neha Singh	

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
After pursuing the above mentioned course, the students will be able to:		
<b>CO1</b>	Understand the basic framework of Industrial economics.	Understanding level (C2)
<b>CO2</b>	Identify the strategic actions of producers in terms of production and cost in a competitive market structure.	Applying level (C3)
<b>CO3</b>	Examine the Industrial location, productivity, efficiency, industrial profile and environmental preservation.	Analyzing level (C4)
<b>CO4</b>	Analyze the role and types of institutional finance, Regional industrial imbalance & Social Security.	Analyzing level (C4)

<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for the module</b>
1.	Introduction	Introduction of Industrial Economics, Framework & Problems; SCP (Structure-Conduct-Performance) Sellers' concentration; Hrfindahl- Hirschman Index.	3
2.	Industrial Organization and Market Structure	Consumer & Producer Surplus; Economies of scale; Cost conditions, Market structure and profitability; Oligopoly theory versus the SCP paradigm Game theory	5
3.	Industrial location and Industrial Productivity	Factors influencing Industrial location and Weber, Florence and Losch theory of industrial location. Measuring Industrial Productivity and Factors influencing Industrial Productivity.	5
4.	Industrial Efficiency	Factors influencing Industrial efficiency & profitability: Internal & External factors, Rostow Stages of Economic Development and Inter-relationship between Industrial Development and Economic Development.	4
5.	Indian Industrial Growth and Pattern	Classification of industries; Industrial policy in India, Issues in industrial proliferation and environmental preservation; Pollution control policies.	3
6.	Industrial Profile and Problems	Structure and Organization of Large Industries in India. Public & Private Sector Enterprises. MSME Role & Problems.	3
7.	Industrial Finance	Role, nature and types of Institutional Finance for industrial development.	2

8.	Industrial Imbalance & Social Security	Regional Industrial Imbalance: Causes and effects of Industrial Imbalances: Measures adopted by Government to reduce regional imbalance & Social Security system Provided by Government of India for various industries.	3
<b>Total number of Lectures</b>			<b>28</b>
<b>Evaluation Criteria</b>			
<b>Components</b>		<b>Maximum Marks</b>	
T1		20	
T2		20	
End Semester Examination		35	
TA		25(Assignment, Test, Quiz)	
<b>Total</b>		<b>100</b>	

**Project based Learning:** Each student in a group of 4-5 will opt a topic related to a particular industry and submit a report related to growth, pattern, finance and challenges faced by the specific industries.

<b>Recommended Reading material:</b>	
1.	<b>Singh,A.andA.N.Sadhu</b> ,IndustrialEconomics,HimalayaPublishingHouse,Bombay,1988
2.	<b>Barthwal,R.R.</b> ,IndustrialEconomics,WileyEasternLtd.,NewDelhi,1985
3.	<b>Cherunilam, F.</b> , Industrial Economics: Indian Perspective (3rdEdition),Himalaya Publishing House, Mumbai, 1994
4.	<b>Ahluwalia,I.J.</b> ,IndustrialGrowthinIndia,OxfordUniversityPress,NewDelhi,1985
5.	<b>Hay,D. and D.J. Morris</b> , Industrial Economics : Theory and Evidence, Oxford University Press, New Delhi, 1979
6.	<b>Kuchhal,S.C.</b> ,IndustrialEconomyofIndia(5thEdition),ChaitanyaPublishingHouse,Allahabad,1980

## Detailed Syllabus

### Lecture-wise Breakup

<b>Subject Code</b>	<b>19B13BT211</b>	<b>Semester: Even</b>	<b>Semester: IV Session: 2023-24 Month from: January to June</b>
<b>Subject Name</b>	<b>Environmental Studies</b>		
<b>Credits</b>	<b>0</b>	<b>Contact Hours</b>	<b>3</b>
<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	1. Prof. Neeraj Wadhwa	
	<b>Teacher(s) (Alphabetically)</b>	1. Prof. Neeraj Wadhwa 2. Dr. Garima Mathur 3. Dr. Ekta Bhatt 4. Dr. Ankisha Vijay	

<b>Cos (NBA code)</b>	<b>Description</b>	<b>Cognitive levels</b>
CO205.1	Explain diversity of environment, ecosystem resources and conservation	Understand Level (C2)
CO205.2	Identify various pollution related hazards, their safe management, associated environmental regulations and policies	Apply Level(C3)
CO205.3	Apply modern techniques for sustainable Urban planning and Disaster management	Apply Level(C3)
CO205.4	Survey ground situation on specific environmental aspects, examine risks involved, make a field report and present the findings	Analysing Level(C4)

<b>Module No.</b>	<b>Subtitle of the Module</b>	<b>Topics in the module</b>	<b>No. of Lectures for the module</b>
<b>1.</b>	The Multidisciplinary nature of environment, Biodiversity	Definition, scope and importance, Need for public awareness, Types of Ecosystems, World Biomes, Ecosystem functioning, Diversity of flora and fauna, species and wild life diversity, Biodiversity hotspots, threats to biodiversity, Case studies.	8
<b>2.</b>	Natural resources, Energy consumption & conservation	Water, Land, Energy (Renewable, non-renewable, wind, solar, hydro, Biomass), Mineral, Forest, & Food resources, Global Conventions on Energy, Kyoto protocol, Case studies.	8
<b>3.</b>	Pollution, hazardous waste management	Air, Water & Land, chemical, noise pollution, sources & causes, effects, Electronic waste, nuclear hazards, Case studies.	8
<b>4.</b>	Urban planning, human communities, Disaster management	Sustainable building, Disaster Management and Contingency Planning, human population, resettlement, rehabilitation environmental movements, environmental ethics, Critical issues concerning Global environment Urbanization, population growth, global warming, climate change, acid rain, ozone depletion etc Case studies.	8
<b>5.</b>	Environmental Policies, Laws, Regulations & ethics	Regulation of technology and innovation, Policy and laws, Different Acts such as: Environmental Protection Act, Air and Water Acts, Wildlife and Forest Acts), US-EPA, National Environmental Policy; Function of pollution control boards (SPCB and CPCB), their roles and responsibilities, Case studies.	4
<b>6</b>	Field Work/	Explore the current environment related	6



		occurrences at national and international level, Study of successful sustainable measures, a know-how of industries in local region and their possible effects, measure of water, air and land quality, Visit to a local polluted site-Urban/Rural /Industrial / Agricultural, Study of simple ecosystems.	
<b>Total number of Lectures</b>			<b>42</b>

<b>Recommended Reading material:</b> Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1.	Chiras D D.(Ed.). 2001. Environmental Science – Creating a sustainable future. 6 <sup>th</sup> ed. Jones & Barlett Publishers.
2.	Joseph, B., 2005, Environmental Studies, Tata McGraw Hill, India
3.	Textbook of Environmental Studies for UG Courses - Erach Bharucha, University Press
4.	Issues of the Journal: Down to Earth, published by Centre for Science and Environment

**EVALUATION:**

Mid Semester Examination - 30 marks (To be held along with T-2 Exam)

End Semester Examination - 40 marks

Teachers Assessment (TA) - 30 marks; **PROJECT BASED COMPONENT: FIELD ACTIVITY**

**Structure of Grading Academic Performance:** Mandatory to Pass, grade will be awarded

**Detailed Syllabus**  
**Lecture-wise Breakup**

<b>Course Code</b>	<b>23B12HS211</b>	<b>Semester: Even</b>	<b>Semester IV Session 2023-2024</b> <b>Months: from Jan. to June 2024</b>
<b>Course Name</b>	<b>Introduction to Political Science</b>		
<b>Credits</b>	3 (2-1-0)	<b>Contact Hours</b>	3

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	<b>Dr. Namreeta Kumari</b>
	<b>Teacher(s) (Alphabetically)</b>	<b>Dr. Namreeta Kumari</b>

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
<b>C206-9.1</b>	Demonstrate an understanding concept of Political Science.	Understand (Level 2)
<b>C206-9.2</b>	Assess the different political ideologies.	Evaluate (Level 5)
<b>C206-9.3</b>	Assess the concept of state and different theories of state.	Evaluate (Level 5)
<b>C206-9.4</b>	Demonstrate an understanding of democracy and models of democracy.	Understand (Level 2)

<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for the module</b>
<b>1.</b>	Understanding Political Science	<ul style="list-style-type: none"> <li>● Evolution</li> <li>● Nature and Scope</li> <li>● Is Political Science a Science?- Political Science as an art, Political Science as a Science</li> <li>● Importance of Studying Political Science</li> </ul>	6
<b>2.</b>	Analyzing the Ideological Discourse	<ul style="list-style-type: none"> <li>● Liberalism: Individualism, Justice, Equality, &amp; Reason</li> <li>● Conservatism: Authoritarian Conservatism, Paternalistic Conservatism, Libertarian Conservatism</li> </ul>	8

		<ul style="list-style-type: none"> <li>● Socialism: Classical Marxism, Orthodox Communism, Ethical Socialism, Revisionist Socialism, Neo revisionism &amp; the third way</li> <li>● Anarchism: Collectivist Anarchism, Individual Anarchism, Anarcho-Capitalism.</li> <li>● Nationalism: Liberal nationalism, Conservative Nationalism Expansionist Nationalism, Anti Colonial post-colonial nationalism.</li> <li>● Feminism: Redefining Political, Waves of Feminism, Strands of Feminism</li> <li>● Multiculturalism: Politics of Recognition, Liberal multiculturalism, Pluralist Multiculturalism, Cosmopolitan Multiculturalism, Critiques of Multiculturalism</li> </ul>	
3.	State	<ul style="list-style-type: none"> <li>● What is State: Idea of state</li> <li>● Theories of State: Evolutionary theory of state, Marxist theory of state, Liberal Theory of State</li> <li>● Role of State</li> </ul>	8
4.	Democracy	<ul style="list-style-type: none"> <li>● Defining Democracy</li> <li>● Models of Democracy- David Held's Model</li> <li>● Rival Theories of Democracy</li> </ul>	6
<b>Total number of Lectures</b>			<b>28</b>

#### Evaluation Criteria

Components	Maximum Marks
T1	20
T2	20
T3	35
TA	25 (Attendance, Quiz, Project)
<b>Total</b>	<b>100</b>

**Project Based learning:** Each student would form a group of 3-4 students and to make projects on issues related with Indian Political System. The project will facilitate students to comprehend the everyday politics of the country.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1. A. Heywood, Political Ideologies: An Introduction, New York: Palgrave Macmillan, 2017.

2. D. Held, Models of Democracy, Stanford: Stanford University Press, 2006

<b>3.</b>	B. O'Leary and P. Dunleavy, <i>Theories of the State: The Politics of Liberal Democracy</i> , London: Macmillan Education Ltd., 1987.
<b>4.</b>	S. De. Beauviour, <i>Second Sex</i> , NewYork: Vintage Books, 1949
<b>5.</b>	A Y. Davis, <i>Abolition Democracy: Beyond Empire, Prisons, and Torture</i> , New York : Seven Stories Press. 2005

**Detailed Syllabus**  
**Lecture wise Breakup**

<b>Course Code</b>	<b>24B11CS242</b>	<b>Semester: EVEN</b>	<b>Semester IV Session 2023-2024</b> Month from Jan to Jun
<b>Course Name</b>	<b>Artificial Intelligence and Machine Learning: Theory &amp; Practice</b>		
<b>Credits</b>	2	<b>Contact Hours</b>	<b>2-0-0</b>
<b>NBA Code</b>	212		

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Deepika Varshney & Dr. Mukesh Saraswat
	<b>Teacher(s) (Alphabetically)</b>	Deepika Varshney, Mukesh Saraswat

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
<b>C212.1</b>	Understand the basics of artificial intelligence, problem solving strategies, and machine learning methods	Understand (Level 2)
<b>C212.2</b>	Apply intelligent searching techniques and learning algorithms to solve a given problem	Apply (Level 3)
<b>C212.3</b>	Analyze the different models of learning and classification algorithm.	Analyze (Level 4)
<b>C212.4</b>	Assess the suitability of algorithms in different application scenarios.	Evaluate (Level 5)
<b>C212.5</b>	Implement searching and learning algorithms for solving real world problems	Create (Level 6)

<b>Module No.</b>	<b>Title of Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures</b>
<b>1.</b>	<b>Fundamentals of AI</b>	Introduction to AI, Problems of AI, AI technique, Tic – Tac – Toe Problem. Intelligent Agents, Agents & Environment, Nature of Environment, Structure of Agents, Goal-based agents, Utility-based agents, Learning agents.	4
<b>2.</b>	<b>Search Techniques</b>	Problem solving agents, searching for solutions; uniform search strategies: breadth first search, depth first search. Heuristic search strategies Greedy best - first search, A* search, AO* search.	6

3.	<b>Introduction to Machine learning</b>	Fundamentals of Machine learning, Types of Machine Learning: Supervised, unsupervised, reinforcement, Machine perception - feature extraction - classification, clustering, linear and logistic regression.	6
4.	<b>Classification Algorithms</b>	Concept of ANN (Artificial Neural Network): Perceptron and backpropagation neural network - k-nearest neighbor rule. Support vector machine: Decision trees: and random forest.	6
5.	<b>Deep Neural Network</b>	Introduction to Deep learning, Convolutional neural networks, CNN Architectures LeNet, AlexNet, GooleNet, VGG Net, ResNet: Comparative analysis	6
<b>Total number of Lectures</b>			<b>28</b>
<b>Project based learning:</b> Each student in a group of 3-4 has to work on a mini-project, in which they will identify a real-life problem and develop the solution by utilizing skills learned throughout the course. The project implementation should be in python or R preferably along with well documentation on different aspects of the software. This enhances the understanding of students towards different concepts of data analytics and also helps them during their employability as data engineer or data analyst.			
<b>Evaluation Criteria</b> <b>Components Maximum Marks</b> T1 20 T2 20 End Term 35 TA 25 ( <b>Attendance (10), Assignment (5), Mini-Project (10)</b> ) <b>Total 100</b>			
<b>Recommended Reading material:</b> Author(s), Title, Edition, Publisher, Year of Publication etc. (Textbooks, Reference Books, Journals, Reports, Websites etc. in the IEEE format)			
<b>Textbook(s)</b>			
1.	R. O. Duda, E. Hart, and D.G. Stork, "Pattern Classification", Second Edition, John Wiley & Sons, Singapore, 2012.		
2.	Francois Chollet, "Deep Learning with Python", Manning Publications, Shelter Island, New York, 2018		
3.	Satish Kumar, "Neural Networks A Classroom Approach", McGraw Hill Education (India) Pvt. Ltd, 2010		
4.	S. Russell and P. Norvig, "Artificial Intelligence: A Modern Approach", Prentice Hall, Third Edition, 2015.		
5.	Nils J. Nilsson, "Artificial Intelligence: A New Synthesis", 1st Edition, Morgan-Kaufmann, 1998		
<b>Reference Books</b>			
1	Ethem Alpaydin, "Introduction to Machine Learning", 3rd Edition, MIT Press, 2014.		
2	C. M. Bishop, "Pattern Recognition and Machine Learning", Springer, 2006.		

3	Kevin P. Murphy, "Machine Learning: A Probabilistic Perspective", MIT Press, 2012
4	Elaine Rich, Kevin Knight, & Shivashankar B Nair, "Artificial Intelligence", McGraw Hill, 3rd ed., 2017.
5	Patterson, "Introduction to Artificial Intelligence & Expert Systems", Pearson, 1st ed. 2015.

### Detailed Syllabus

<b>Course Code</b>	<b>24B15CS244</b>	<b>Semester:</b> Even	<b>Semester: IV</b> <b>Session</b> 2023 -2024 Month from January to June
<b>Course Name</b>	Artificial Intelligence and Machine Learning workshop		
<b>Credits</b>	01	<b>Contact Hours</b>	0- 0 - 2
<b>NBA Code</b>	276		

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Deepika Varshney & Dr. Mukesh Saraswat
	<b>Teacher(s) (Alphabetically)</b>	Dr. Deepika Varshney & Dr. Mukesh Saraswat

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
At the completion of the course, Students will be able to		
<b>C276.1</b>	Understanding the basic syntax used for data manipulation in Python.	Understand (Level 2)
<b>C276.2</b>	Apply different python libraries for AI and Machine Learning applications.	Apply (Level 3)
<b>C276.3</b>	Analyze the real world applications related to AI and Machine learning	Analyze (Level 4)
<b>C276.4</b>	Analyze the performance of Machine learning algorithms using python	Analyze(Level 4)
<b>C276.5</b>	Create a model to solve a real-world problem of classification or clustering.	Create (Level 6)

<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Labs (2H) for the module</b>
<b>1.</b>	Python fundamentals	Data Types, Basic programming, Conditional Statements, List, Tuples, Sets, Dictionary, Loops, String Manipulation, Functions, Strings	<b>3</b>
<b>2.</b>	Python Libraries	Python Libraries: Array and matrix processing using Numpy, Data Analysis using Pandas, Image manipulation using Scipy, Deep learning implementation using TensorFlow, Designing Neural Network using Keras, Matplotlib	<b>5</b>
<b>3.</b>	Machine Learning using Python	Data preparation, creating training and testing sets, building a model, Model evaluation, Supervised learning: Decision trees, Linear regression, Logistic regression, SVM, Random Forest, ANN. Unsupervised learning: k-means clustering	<b>4</b>
<b>4.</b>	Mini Project	1. Identify the broad topic of your mini project based on the AI&ML.	<b>2</b>



		2. Study minimum 8 quality research papers based on the selected topic. 3. Identify the research problem. 4. Design the architecture for the proposed problem. 5. Implement and propose your novelty/improvement in terms of algorithm/new feature. 6. Perform the experimental analysis (in Python language only).	
			<b>14</b>
<b>Evaluation Criteria</b>			
<b>Components</b>		<b>Maximum Marks</b>	
Lab Test 1		20	
Lab Test 2		20	
D2D Attendance (10))		60 (Evaluation 1 (10), Evaluation 2(10), Mini Project (15), Assignment (15),	
<b>Total</b>		<b>100</b>	
<p>Project Based Learning: Each student in a group of 3-4 has to work on a mini-project, in which they will identify a real-life problem and develop the solution by utilizing skills learned throughout the course. Each group will evaluate the performance of the models applied and present the interpretation of the results. The project will be done in Python.</p>			
<p><b>Recommended Reading material:</b> Author(s), Title, Edition, Publisher, Year of Publication etc. (Textbooks, Reference Books, Journals, Reports, Websites etc. in the IEEE format)</p>			
<b>Text Book(s)</b>			
1.	R. O. Duda, E. Hart, and D.G. Stork, "Pattern Classification", Second Edition, John Wiley & Sons, Singapore, 2012.		
2.	Francois Chollet, "Deep Learning with Python", Manning Publications, Shelter Island, New York, 2018		
3.	Satish Kumar, "Neural Networks A Classroom Approach", McGraw Hill Education (India) Pvt. Ltd, 2010		
4.	S. Russell and P. Norvig, "Artificial Intelligence: A Modern Approach", Prentice Hall, Third Edition, 2015.		
5.	Nils J. Nilsson, "Artificial Intelligence: A New Synthesis", 1st Edition, Morgan-Kaufmann, 1998		
<b>References</b>			
1.	Ethem Alpaydin, "Introduction to Machine Learning", 3rd Edition, MIT Press, 2014.		
2.	C. M. Bishop, "Pattern Recognition and Machine Learning", Springer, 2006.		
3.	Kevin P. Murphy, "Machine Learning: A Probabilistic Perspective", MIT Press, 2012		

**Detailed Syllabus**  
**Lecture-wise Breakup**

<b>Subject Code</b>	<b>24B12HS211</b>	<b>Semester: Even</b>	<b>Semester: IV      Session: 2023-24</b> <b>Month: Jan 2024 to June 2024</b>
<b>Subject Name</b>	<b>Media, Culture and Society</b>		
<b>Credits</b>	<b>3</b>	<b>Contact Hours</b>	<b>(2-1-0)</b>

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	<b>Dr Nibha Sinha</b>
	<b>Teacher(s) (Alphabetically)</b>	<b>Dr Nibha Sinha</b>

<b>CO Code</b>	<b>COURSE OUTCOMES</b>	<b>COGNITIVE LEVELS</b>
C206-10.1	Understanding of basic concepts, theories and methods to critically evaluate and adjudge the role of media and social media to shape contemporary culture and society	Understanding Level-(C2)
C206-10.2	Analyzing the importance of media strategy and media literacy in social transformation	Analyzing Level-(C4)
C206-10.3	Analysis of New Media emergence, production, convergence and its challenges	Analyzing Level-(C4)
C206-10.4	Critical evaluation of media content, and the ways in which media is used by state and non- state actors in social life, cultural production, politics, and governance.	Evaluating Level-(C5)
C206-10.5	Creating constructive and analytical approach towards Social, cultural and political prospects of media	Creating Level- (C6)

<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for the module</b>
<b>1.</b>	<b>Introduction</b>	Orientation of the Course	1
<b>2.</b>	<b>Introduction to Media Studies: Basic Theories and Concepts</b>	Theorizing Media, Culture and Society; Identity and Culture, Media and the changing of Social Character, representation and emergence of consumerism and media cultures.	6
<b>3</b>	<b>Mass Media and Development Communication</b>	Gender, Race and Ethnicity, Media Literacy and Development, Media and Social Change, Communication Strategies for Development, influence of media on attitudes and behaviors, media impact on social transformations.	6
<b>4.</b>	<b>Media in/as social worlds: Challenges</b>	Emergence of New media, and its production: (ownership patterns and control, advertising), Convergence, social media: social significance and challenges	5
<b>5</b>	<b>Visual Media: Images and Implications</b>	Semiotics and Visual Analysis, Advertising and Visual Persuasion, Visual Storytelling in Film and Television and its impact, Myths and stereotypes in Media Representation, Power of Images in Shaping Public Opinion	6
<b>6</b>	<b>Media and State, democracy and the publics</b>	Mediated Politics: Opinion political campaigns and polls, Media as public sphere: virtual citizenship, Deconstructing Orientalism in Media.	4

<b>Total number of Lectures</b>		<b>28</b>
<b>Evaluation Criteria</b>		
<b>Components</b>	<b>Maximum Marks</b>	
T1	20	
T2	20	
End Semester Examination	35	
TA	25 (Project, Presentation and Attendance)	
<b>Total</b>	<b>100</b>	

<b>Recommended Reading material:</b> Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1.	Paul Dodkinson, Media, Culture and Society: An Introduction, Sage, 2016.
2.	Douglas Kellner, Media Culture: Cultural Studies, Identity and Politics between the modern and the Post Modern, 2016
3.	Stig Hjarvard, The Mediatization of Culture and Society, Routledge, 2013
4.	Tonny Bennett, James Curran, Michael Gurevitch, Janet Wollacott, Culture, Society and The Media, Routledge, 1982

COs (NBA Code)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C206-10.1						3			1			3		
C206-10.2						3			2			3		
C206-10.3						3		1	2	2		3		
C206-10.4						3		2	1	2		3		
C206-10.5						3		3	2	2		3		
<b>Avg.</b>						3.00		2.00	1.60	2.00		3.00		

**Detailed Syllabus**  
**Lecture-wise Breakup**

<b>Course Code</b>	<b>15B1NHS431</b>	<b>Semester:EVEN</b>	<b>Semester IV Session2023-24</b> <b>Month: January 2024 to June 2024</b>
<b>Course Name</b>	<b>Introduction to Literature</b>		
<b>Credits</b>	<b>3</b>	<b>Contact Hours</b>	<b>3 (2-1-0)</b>

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Monali Bhattacharya (Sector 62) & Dr. Ekta Srivastava (Sector 128)
	<b>Teacher(s) (Alphabetically)</b>	Dr. Ekta Srivastava, Dr. Monali Bhattacharya

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
<b>C206-5.1</b>	Understand figurative language to demonstrate communication skills individually and in a group.	CL-2 Understanding
<b>C206-5.2</b>	Develop a critical appreciation of life and society through a close reading of select texts.	CL-3 Applying
<b>C206-5.3</b>	Analyse a literary text thematically and stylistically and examine it as representing different spectrum of life, human behavior and moral consciousness of society.	CL-4 Analysing
<b>C206-5.4</b>	To interpret Literature as reflection of cultural and moral values of life and society.	CL-5 Evaluating

<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for the module</b>
<b>1.</b>	Introduction to Literature & Genres	Introduction Literary Genres Literary Devices Learning Communication Skills through Literature	5
<b>2.</b>	Poems	On His Blindness: John Milton My Last Duchess: Robert Browning “Hope” is the thing with feathers: Emily Dickinson A Prayer before Birth: Louis MacNeice Goodbye Party for Miss Pushpa T.S.: Nissim Ezekiel	6
<b>3.</b>	Prose & Short Stories	The Spectator Club: Richard Steele Evidence: Isaac Asimov Toba Tek Singh: Saadat Hasan Manto	6
<b>4.</b>	Plays & Drama	Andher Nagari Chaupat Raja: Bhartendu Harishchandra The Characters of Macbeth & Lady Macbeth as Universal Characters. Arms & The Man: G B Shaw	7
<b>5.</b>	Novel	To Sir with Love: E.R. Braithwaite	4

<b>Total number of Lectures</b>		28
<b>Evaluation Criteria</b>		
<b>Components</b>	<b>Maximum Marks</b>	
T1	20	
T2	20	
End Semester Examination	35	
TA	25 (Project, Quiz and class participation)	
<b>Total</b>	<b>100</b>	

**Project Based Learning:**

The students will create a story out of a song in groups and analyse their own creativity applying Freitag's narrative technique, identify literary devices and interpret their work thematically highlighting language, cultural and moral learnings, one would get on reading their story. The created works will be exchanged and peer review will be undertaken and reports will be submitted as Part B of the project.

Recommended Reading material:	
1	John E. Eck, 'Writing with Sweet Clarity' 1st Edition. Routledge. 2022 <a href="https://doi.org/10.4324/9781003167532">https://doi.org/10.4324/9781003167532</a>
2	M.H. Abrams, Geoffrey Harpham 'A Glossary of Literary Terms', 11 <sup>th</sup> Edition, Cengage Learning, 2014,
3	Mark William Roche, 'Why Literature matters in the 21 <sup>st</sup> Century', 1st Edition, Yale University Press, 2004.
4	E.R. Braithwaite, 'To Sir With Love', First Edition, Bodley Head, UK, 1959. Susie Thomas(Ed), "E. R. Braithwaite: 'To Sir, with Love' – 1959", Available at <a href="http://www.londonfictions.com">http://www.londonfictions.com</a>
5	Khalid Hasan ( Translator), 'Saadat Hasan Maanto : Toba Tek Singh' Reprint, Penguin Books, India, 2008.
6	G.B Shaw, 'Arms & The Man', Paperback, 2013 <a href="https://onemorelibrary.com/index.php/en/?option=com_djclassifieds&amp;format=raw&amp;view=download&amp;task=download&amp;fid=10428">https://onemorelibrary.com/index.php/en/?option=com_djclassifieds&amp;format=raw&amp;view=download&amp;task=download&amp;fid=10428</a>
7	Anon, (a.n.d.). <i>The Spectator Club. Sir Richard Steele.</i> 1909-14. Available at: <a href="https://www.bartleby.com/27/7.html">https://www.bartleby.com/27/7.html</a>
8	<i>All poems online: <a href="http://www.poetryfoundation.org">http://www.poetryfoundation.org</a></i>
9	Wolfgang Clemen, 'Shakespeare's Soliloquies', First Edition, Routledge, London, 1987.