



Name of the Course: B.Sc. in Information Technology (AI)			
Subject: Digital Fabrication and Digital Fabrication Lab			
Course Code: BITAI 201 & BITAI 291		Semester: II	
Duration: 36 Hrs		Maximum Marks: 100+100	
Teaching Scheme		Examination Scheme	
Theory: 3 hrs./week		End Semester Exam:70	
Tutorial: 0		Attendance: 5	
Practical: 4 hrs./week		Continuous Assessment: 25	
Credit: 3+2		Practical Sessional internal continuous evaluation: 40	
		Practical Sessional external examination: 60	
Aim:			
Sl. No.			
1.	The point of this course is to give you a vibe for circuit design.		
2.	You ought to know about the way that there are regularly a few calculations for some issue, and one calculation might be superior to another, or one calculation better in certain conditions and another better in others.		
Objective:			
Sl. No.			
1.	To impart the basic concepts of digital fabrication		
Pre-Requisite:			
Sl. No.			
1.	Basics of programming language.		
2.	Basic Knowledge of Electrical Electronics		
Contents		3 Hrs./week	
Chapter	Name of the Topic	Hour s	Marks



01	The concepts of Fabrication are seen within the paradigms of DoX rules (Design for Machining, Design for Assembly, Design for Forming etc) Discuss how to make an object and to give shape.	9	20
02	Flexibility -Generic form of handling data	9	20
03	Art to CAD ,Training in using CAD software ,SolidEdge(but basics across all CAD softwares same)	9	20
04	Using 3D printing and each student and team to fabricate a real part.	9	10
	Sub Total:	36	70
	Internal Assessment Examination & Preparation of Semester Examination	4	30
	Total:	40	100

Practical:

Skills to be developed:

1. .

List of Practical:

Based on the curriculum as covered by subject teacher.

Assignments:

Based on the curriculum as covered by subject teacher.

List of Books

Text Books:

Name of Author	Title of the Book	Edition/ISSN/ISBN	Name of the Publisher
Christopher Beorkrem	Material Strategies in Digital Fabrication		
Caneparo, Luca	Digital Fabrication in Architecture, Engineering and Construction		

Reference Books:



List of equipment/apparatus for laboratory experiments:							
Sl. No.							
1.		Electronics apparatus, circuit Board					
2.							
End Semester Examination Scheme.				Maximum Marks-70.		Time allotted-3hrs.	
Group	Unit	Objective Questions (MCQ only with the correct answer)		Subjective Questions			
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
A	1 to 9	10	10				
B	1 to 9			5	3	5	60
C	1 to 9			5	3	15	
<ul style="list-style-type: none"> • Only multiple choice type question (MCQ) with one correct answer are to be set in the objective part. • Specific instruction to the students to maintain the order in answering objective questions should be given on top of the question paper. 							
Examination Scheme for end semester examination:							
Group	Chapter	Marks of each question	Question to be set	Question to be answered			
A	All	1	10	10			
B	All	5	5	3			
C	All	15	5	3			
Examination Scheme for Practical Sessional examination:							
Practical Internal Sessional Continuous Evaluation							
Internal Examination:							



Continuous evaluation			40
External Examination: Examiner-			
Signed Lab Note Book		10	
On Spot Experiment		40	
Viva voce		10	60



Name of the Course: B.Sc. in Information Technology (AI)	
Subject: Data Structure and Algorithm with Python & Data Structure and Algorithm with Python Lab	
Course Code: BITAI 202 & BITAI 292	Semester: II
Duration: 36 Hrs	Maximum Marks: 100+100
Teaching Scheme	Examination Scheme
Theory: 3 hrs./week	End Semester Exam:70
Tutorial: 0	Attendance: 5
Practical: 4 hrs./week	Continuous Assessment: 25
Credit: 3+2	Practical Sessional internal continuous evaluation: 40
	Practical Sessional external examination: 60
Aim:	
Sl. No.	
1.	The point of this course is to give you a vibe for algorithms and data structures as a focal area of what it is to be a computer science student.
2.	You ought to know about the way that there are regularly a few calculations for some issue, and one calculation might be superior to another, or one calculation better in certain conditions and another better in others.
3.	You should have some idea of how to work out the efficiency of an algorithm.
4.	You will be able to use and design linked data structures
5.	You will learn why it is good programming style to hide the details of a data structure within an abstract data type.
6.	You should have some idea of how to implement various algorithm using python programming.
Objective:	
Sl. No.	
1.	To impart the basic concepts of data structures and algorithms.
2.	To understand concepts about searching and sorting techniques.
3.	To understand basic concepts about stacks,queues,lists,trees and graphs.

4.	To understanding about writing algorithms and step by step approach in solving problems with the help of fundamental data structures		
Pre-Requisite:			
Sl. No.			
1.	Basics of programming language.		
2.	Logic building skills.		
Contents			3 Hrs./week
Chapter	Name of the Topic	Hours	Marks
01	Introduction to Data Structure Abstract Data Type.	1	2
02	Arrays 1D, 2D and Multi-dimensional Arrays, Sparse Matrices. Polynomial representation .	3	4
03	Linked Lists Singly, Doubly and Circular Lists, Normal and Circular representation of Self Organizing Lists, Skip Lists, Polynomial representation.	4	7
04	Stacks Implementing single / multiple stack/s in an Array, Prefix, Infix and Postfix expressions, Utility and conversion of these expressions from one to another, Applications of stack, Limitations of Array representation of stack.	4	10
05	Queues Array and Linked representation of Queue, Circular Queue, De-queue, Priority Queues.	4	7
06	Recursion Developing Recursive Definition of Simple Problems and their implementation, Advantages and Limitations of Recursion, Understanding what goes behind Recursion	4	5

	(Internal Stack Implementation)		
07	Trees Introduction to Tree as a data structure, Binary Trees (Insertion, Deletion, Recursive and Iterative Traversals of Binary Search Trees), Threaded Binary Trees (Insertion, Deletion, Traversals), Height-Balanced Trees (Various operations on AVL Trees).	5	15
08	Searching and Sorting Linear Search, Binary Search, Comparison of Linear and Binary Search, Selection Sort, Insertion Sort, Merge Sort, Quick sort, Shell Sort, Comparison of Sorting Techniques	6	15
09	Hashing Introduction to Hashing, Deleting from Hash Table, Efficiency of Rehash Methods, Hash Table Reordering, Resolving collision by Open Addressing, Coalesced Hashing, Separate Chaining, Dynamic and Extendible Hashing, Choosing a Hash Function, Perfect Hashing Function.	5	5
	Sub Total:	36	70
	Internal Assessment Examination & Preparation of Semester Examination	4	30
	Total:	40	100

Practical:

Skills to be developed:

Intellectual skills:

2. Skill to analyze algorithms and to determine algorithm correctness and their time efficiency.
3. Knowledge of advanced abstract data type (ADT) and data structures and their implementations.
4. Ability to implement algorithms to perform various operations on data structures.

List of Practical:

1. Implementation of array operations.
2. Stacks and Queues: adding, deleting elements .
3. Circular Queue: Adding & deleting elements
4. Merging Problem : Evaluation of expressions operations on Multiple stacks & queues
5. Implementation of linked lists: inserting, deleting, inverting a linked list.
6. Implementation of stacks & queues using linked lists:



7. Polynomial addition, Polynomial multiplication
8. Sparse Matrices : Multiplication, addition.
9. Recursive and Non Recursive traversal of Trees Threaded binary tree traversal.AVL tree implementation Application of Trees.
10. Application of sorting and searching algorithms Hash tables implementation: searching, inserting and deleting, searching & sorting techniques.

Assignments:

Based on the curriculum as covered by subject teacher.

List of Books

Text Books:

Name of Author	Title of the Book	Edition/ISSN/ISBN	Name of the Publisher
Michael H. Goldwasser, Michael T. Goodrich, and Roberto Tamassia	Data Structures and Algorithms in Python	1118476735, 9781118476734	John Wiley & Sons
Rance D Ncaise	Data Structures and Algorithms Using Python	9788126562169	John Wiley & Sons

Reference Books:

SartajSahni	DataStructures, Algorithms and applications in C++	Second Edition	Universities Press
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List of equipment/apparatus for laboratory experiments:

Sl. No.	
1.	Computer with moderate configuration
2.	Python 2.7 or higher and other softwares as required.

End Semester Examination Scheme. Maximum Marks-70. Time allotted-3hrs.

Group	Unit	Objective Questions (MCQ only with the	Subjective Questions



		correct answer)					
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
A	1 to 9	10	10				
B	1 to 9			5	3	5	60
C	1 to 9			5	3	15	

- Only multiple choice type question (MCQ) with one correct answer are to be set in the objective part.
- Specific instruction to the students to maintain the order in answering objective questions should be given on top of the question paper.

Examination Scheme for end semester examination:

Group	Chapter	Marks of each question	Question to be set	Question to be answered
A	All	1	10	10
B	All	5	5	3
C	All	15	5	3

Examination Scheme for Practical Sessional examination:

Practical Internal Sessional Continuous Evaluation

Internal Examination:

Continuous evaluation			40
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External Examination: Examiner-

Signed Lab Note Book	10	
On Spot Experiment	40	
Viva voce	10	60



Name of the Course: B.Sc. in Information Technology (AI)	
Subject: Discrete Mathematics	
Course Code: BITAI 203	Semester: II
Duration: 36 Hrs	Maximum Marks: 100
Teaching Scheme	Examination Scheme
Theory: 3 hrs./week	End Semester Exam: 70
Tutorial:1 hrs./week	Attendance: 5
Practical:0	Continuous Assessment: 25
Credit:4	Practical Sessional internal continuous evaluation: NA
	Practical Sessional external examination: NA
Aim:	
Sl. No.	
1.	The aim of this course is to introduce you with a new branch of mathematics which is discrete mathematics, the backbone of Computer Science.
2.	In order to be able to formulate what a computer system is supposed to do, or to prove that it does meet its specification, or to reason about its efficiency, one needs the precision of mathematical notation and techniques. The Discrete Mathematics course aims to provide this mathematical background.
Objective: Throughout the course, students will be expected to demonstrate their understanding of	
Discrete Mathematics by being able to do each of the following	
Sl. No.	
1.	Use mathematically correct terminology and notation.
2.	Construct correct direct and indirect proofs.
3.	Use division into cases in a proof.
4.	Use counterexamples.
5.	Apply logical reasoning to solve a variety of problems.
Pre-Requisite:	

Sl. No.			
1.	Knowledge of basic algebra		
2.	Ability to follow logical arguments.		
Contents			4 Hrs./week
Chapter	Name of the Topic	Hour s	Marks
01	<p>Set Theory</p> <p>Definition of Sets, Venn Diagrams, complements, Cartesian products, power sets, counting principle, cardinality and countability (Countable and Uncountable sets), proofs of some general identities on sets, pigeonhole principle. Relation: Definition, types of relation, composition of relations, domain and range of a relation, pictorial representation of relation, properties of relation, partial ordering relation. Function: Definition and types of function, composition of functions, recursively defined functions.</p>	7	14
02	<p>Propositional logic</p> <p>Proposition logic, basic logic, logical connectives, truth tables, tautologies, contradictions, normal forms (conjunctive and disjunctive), modus ponens and modus tollens, validity, predicate logic, universal and existential quantification. Notion of proof: proof by implication, converse, inverse, contrapositive, negation, and contradiction, direct proof, proof by using truth table, proof by counter example.</p>	8	14
03	<p>Combinatorics</p> <p>Mathematical induction, recursive mathematical definitions, basics of counting, permutations, combinations, inclusion-exclusion, recurrence relations (nth order recurrence relation with constant coefficients, Homogeneous recurrence relations, Inhomogeneous recurrence relation), generating function (closed form expression, properties of G.F., solution of recurrence relation using G.F, solution of combinatorial problem using G.F.)</p>	7	14
04	<p>Algebraic Structure</p> <p>Binary composition and its properties definition of algebraic</p>	6	10

	structure, Groyas Semi group, Monoid Groups, Abelian Group, properties of groups, Permutation Groups, Sub Group, Cyclic Group, Rings and Fields (definition and standard results).		
05	Graphs Graph terminology, types of graph connected graphs, components of graph, Euler graph, Hamiltonian path and circuits, Graph coloring, Chromatic number. Tree: Definition, types of tree(rooted, binary), properties of trees, binary search tree, tree traversing (preorder, inorder, post order). Finite Automata: Basic concepts of Automation theory, Deterministic finite Automation (DFA), transition function, transition table, Non Deterministic Finite Automata (NDFAs), Mealy and Moore Machine, Minimization of finite Automation.	8	18
	Sub Total:	36	70
	Internal Assessment Examination & Preparation of Semester Examination	4	30
	Total:	40	100

Assignments:

Based on the curriculum as covered by subject teacher.

List of Books

Text Books:

Name of Author	Title of the Book	Edition/ISSN/ISBN	Name of the Publisher
Kenneth H. Rosen	Discrete Mathematics and its Applications		Tata Mc.Graw Hill
eymourLipschutz, M.Lipson	Discrete Mathematics		Tata Mc.Graw Hill

Reference Books:

V. Krishnamurthy	Combinatorics:Theory and Applications		East-West Press
Kolman, Busby Ross	Discrete Mathematical Structures		Prentice Hall International

End Semester Examination Scheme.

Maximum Marks-70.

Time allotted-

3hrs.							
Group	Unit	Objective Questions (MCQ only with the correct answer)		Subjective Questions			
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
A	1 to 5	10	10				
B	1 to 5			5	3	5	60
C	1 to 5			5	3	15	
<ul style="list-style-type: none"> • Only multiple choice type question (MCQ) with one correct answer are to be set in the objective part. • Specific instruction to the students to maintain the order in answering objective questions should be given on top of the question paper. 							
Examination Scheme for end semester examination:							
Group	Chapter	Marks of each question	Question to be set	Question to be answered			
A	All	1	10	10			
B	All	5	5	3			
C	All	15	5	3			



Name of the Course: B.Sc. Information Technology (AI).			
Subject: Introduction to Drones and Applications			
Course Code: BITAI 204		Semester: II	
Duration: 36 Hours		Maximum Marks: 100	
Teaching Scheme		Examination Scheme	
Theory: 3 hrs./week		End Semester Exam: 70	
Tutorial: 1 hrs./week		Attendance: 5	
Practical: 0		Continuous Assessment: 25	
Credit: 4		Practical Sessional internal continuous evaluation: NA	
		Practical Sessional external examination: NA	
Aim:			
Sl. No.			
1	To make the term "UAV" understandable for the student.		
2	To encourage the students to make their own customised UAV.		
Objective:			
Sl. No.			
1	The objective of the course is to provide fundamentals of Drones. Various types of UAVs were introduced along with application areas of different techniques.		
Pre-Requisite:			
Sl. No.			
Contents			Hrs./week
Chapter	Name of the Topic	Hours	Marks
01	Introduction	9	10
02	Unmanned Aerial System (UAS) components	9	20
03	Concepts of flight	9	20
04	Regulatories and regulations	9	20
	Sub Total:	36	70
	Internal Assessment Examination & Preparation of Semester Examination	4	30
	Total:	40	100
Practical:			
Skills to be developed:			
Intellectual skills:			
List of Practical: Sl. No. 1& 2 compulsory & at least three from the rest)			
Assignments: Based on Theory Lecture.			
List of Books			
Text Books:			
Name of Author	Title of the Book	Edition/ISSN/ISBN	Name of the

							Publisher
Dan Gettinger	The Drone Databook						
Reference Books:							
List of equipment/apparatus for laboratory experiments:							
Sl. No.							
1.							
2.							
3.							
4.							
5.							
End Semester Examination Scheme.		Maximum Marks-70.			Time allotted-3hrs.		
Group	Unit	Objective Questions (MCQ only with the correct answer)		Subjective Questions			
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
A	1,2,3,4,5,6	10	10				
B	1,2,3,4,5,6			5	3	5	60
C	1,2,3,4,5,6			5	3	15	
<ul style="list-style-type: none"> Only multiple choice type question (MCQ) with one correct answer are to be set in the objective part. Specific instruction to the students to maintain the order in answering objective questions should be given on top of the question paper. 							
Examination Scheme for end semester examination:							
Group	Chapter	Marks of each question	Question to be set	Question to be answered			
A	ALL	1	10	10			
B	ALL	5	5	3			
C	ALL	15	5	3			



Name of the Course: B.Sc. in Information Technology (AI)			
Subject: Intelligence of Biological Systems			
Course Code: BITAI 205		Semester: II	
Duration: 24Hrs		Maximum Marks: 100	
Teaching Scheme		Examination Scheme	
Theory: 2 hrs./week		End Semester Exam: 70	
Tutorial: 0		Attendance: 5	
Practical: 0		Continuous Assessment: 25	
Credit: 2		Practical Sessional internal continuous evaluation: NA	
		Practical Sessional external examination: NA	
Aim:			
Sl. No.			
1.	To enable critical thinking in relation to biological affairs.		
2.	Understanding about interdisciplinary nature of biological issues		
3.	Independent research regarding biological problems in form of project report		
Objective:			
Sl. No.			
1.	To create awareness about biological issues.		
2.	To nurture the curiosity of students particularly in relation to natural environment.		
3.	To develop an attitude among students to actively participate in all the activities regarding environment protection		
Contents			4 Hrs./week
Chapter	Name of the Topic	Hours	Marks
01	Introduction Bring out the fundamental differences between science and engineering by drawing a comparison between eye and camera, Bird flying and aircraft. Mention the most exciting aspect of biology as an independent scientific discipline	7	10

02	<p>Classification and Genetics</p> <p>Discuss classification based on (a) cellularity- Unicellular or multicellular (b) ultrastructure- prokaryotes or eucaryotes. (c) energy and Carbon utilisation -Autotrophs, heterotrophs, lithotropes (d) Ammonia excretion – aminotelic, uricotelic, ureotelic (e) Habitata- aquatic or terrestrial (e) Molecular taxonomy- three major kingdoms of life. A given organism can come under different category based on classification. Model organisms for the study of biology come from different groups, Concepts of recessiveness and dominance. Concept of mapping of phenotype to genes. Discuss about the single gene disorders in humans. Discuss the concept of complementation using human genetics</p>	7	20
03	<p>Biomolecules & Enzymes</p> <p>Discuss monomeric units and polymeric structures. Discuss about sugars, starch and cellulose. Amino acids and proteins. Nucleotides and DNA/RNA. Two carbon units and lipids. Enzyme classification. Mechanism of enzyme action. Discuss at least two examples. Enzyme kinetics and kinetic parameters</p> <p>coefficient, effective stack height, smokestack plumes and Gaussian plume model. Definition of pollutants and contaminants, Primary and secondary pollutants: emission standard, criteria pollutant. Sources and effect of different air pollutants- Suspended particulate matter, oxides of carbon, oxides of nitrogen, oxides of sulphur, particulate, PAN. Smog, Photochemical smog and London smog. Depletion Ozone layer: CFC, destruction of ozone layer by CFC, impact of other green house gases, effect of ozone modification. Standards and control measures: Industrial, commercial and residential air quality standard, control measure (ESP. cyclone separator, bag house, catalytic converter, scrubber (ventury), Statement with brief reference).</p>	8	20
04	<p>Macromolecular analysis & Metabolism</p>	7	10

	Proteins- structure and function. Hierarch in protein structure.Primary secondary, tertiary and quaternary structure. Proteins as enzymes, transporters, receptors and structural elements., Exothermic and endothermic versus endergonic and exergonic reactions , This should include the breakdown of glucose to CO ₂ + H ₂ O (Glycolysis and Krebs cycle) and synthesis of glucose from CO ₂ and H ₂ O (Photosynthesis).Energy yielding and energy consuming reactions. Concept of Energy Charge.						
05	Microbiology Concept of single celled organisms.Concept of species and strains. Identification and classification of microorganisms. Microscopy. Ecological aspects of single celled organisms. Sterilization and media compositions.Growth kinetics.	7	10				
	Sub Total:	36	70				
	Internal Assessment Examination & Preparation of Semester Examination	4	30				
	Total:	40	100				
Name of Author	Title of the Book	Edition/ISSN/ISBN	Name of the Publisher				
Campbell, N. A., Reece, J. B., Urry, Lisa, Cain, M, L., Wasserman, S. A., Minorsky, P. V., Jackson, R.G. M.Masters,	Biology: A global approach:		Pearson				
Reference Books:							
End Semester Examination Scheme. Maximum Marks-70. Time allotted-3hrs.							
Group	Unit	Objective Questions (MCQ only with the correct answer)		Subjective Questions			
		No of	Total	No of	To	Marks	Total



		question to be set	Marks	question to be set	answer	per question	Marks
A	1 to 5	10	10				
B	1 to 5			5	3	5	60
C	1 to 5			5	3	15	
<ul style="list-style-type: none"> • Only multiple choice type question (MCQ) with one correct answer are to be set in the objective part. • Specific instruction to the students to maintain the order in answering objective questions should be given on top of the question paper. 							
Examination Scheme for end semester examination:							
Group	Chapter	Marks of each question	Question to be set	Question to be answered			
A	All	1	10	10			
B	All	5	5	3			
C	All	15	5	3			



Name of the Course: B.Sc. in Information Technology (AI)			
Subject: Environmental Science			
Course Code: BITAI 206		Semester: II	
Duration: 36 Hrs		Maximum Marks: 100	
Teaching Scheme		Examination Scheme	
Theory: 1 hr./week		End Semester Exam: 70	
Tutorial: 0		Attendance: 5	
Practical: 0		Continuous Assessment: 25	
Credit: 1		Practical Sessional internal continuous evaluation: NA	
		Practical Sessional external examination: NA	
Aim:			
Sl. No.			
1.	To enable critical thinking in relation to environmental affairs.		
2.	Understanding about interdisciplinary nature of environmental issues		
3.	Independent research regarding environmental problems in form of project report		
Objective:			
Sl. No.			
1.	To create awareness about environmental issues.		
2.	To nurture the curiosity of students particularly in relation to natural environment.		
3.	To develop an attitude among students to actively participate in all the activities regarding environment protection		
4.	To develop an attitude among students to actively participate in all the activities regarding environment protection		
Contents			4 Hrs./week
Chapter	Name of the Topic	Hours	Marks
01	Introduction Basic ideas of environment, basic concepts, man, society & environment, their interrelationship. Mathematics of population growth and associated problems, Importance of population study in environmental engineering, definition of resource, types of	3	10

	<p>resource, renewable, non- renewable, potentially renewable, effect of excessive use vis-à-vis population growth, Sustainable Development.</p> <p>Materials balance: Steady state conservation system, steady state system with non-conservative pollutants, step function.</p> <p>Environmental degradation: Natural environmental Hazards like Flood, earthquake, Landslide-causes, effects and control/management, Anthropogenic degradation like Acid rain-cause, effects and control. Nature and scope of Environmental Science and Engineering.</p>		
02	<p>Ecology</p> <p>Elements of ecology: System, open system, closed system, definition of ecology, species, population, community, definition of ecosystem- components types and function.</p> <p>Structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems, Mangrove ecosystem (special reference to Sundar ban), Food chain [definition and one example of each food chain], Food web.</p> <p>Biogeochemical Cycle- definition, significance, flow chart of different cycles with only elementary reaction [Oxygen, carbon, Nitrogen, Phosphate, Sulphur].</p> <p>Biodiversity- types, importance, Endemic species, Biodiversity Hot-spot, Threats to biodiversity, Conservation of biodiversity.</p>	7	10
03	<p>Air pollution and control</p> <p>Atmospheric Composition: Troposphere, Stratosphere, Mesosphere, Thermosphere, Tropopause and Mesopause. Energy balance: Conductive and Convective heat transfer, radiation heat transfer, simple global temperature model [Earth as a black body, earth as albedo], Problems. Green house effects: Definition, impact of greenhouse gases on the global climate and consequently on sea water level, agriculture and marine food. Global warming and its consequence, Control of Global warming. Earth's heat budget. Lapse rate: Ambient lapse rate Adiabatic lapse rate, atmospheric stability, temperature inversion (radiation inversion). Atmospheric dispersion: Maximum mixing depth, ventilation coefficient, effective stack height, smokestack plumes and Gaussian plume model. Definition of pollutants and contaminants, Primary and secondary pollutants: emission</p>	6	15

	<p>standard, criteria pollutant. Sources and effect of different air pollutants- Suspended particulate matter, oxides of carbon, oxides of nitrogen, oxides of sulphur, particulate, PAN. Smog, Photochemical smog and London smog. Depletion Ozone layer: CFC, destruction of ozone layer by CFC, impact of other green house gases, effect of ozone modification. Standards and control measures: Industrial, commercial and residential air quality standard, control measure (ESP. cyclone separator, bag house, catalytic converter, scrubber (ventury), Statement with brief reference).</p>		
04	<p>Water Pollution and Control</p> <p>Hydrosphere, Hydrological cycle and Natural water. Pollutants of water, their origin and effects: Oxygen demanding wastes, pathogens, nutrients, Salts, thermal application, heavy metals, pesticides, volatile organic compounds. River/Lake/ground water pollution: River: DO, 5 day BOD test, Seeded BOD test, BOD reaction rate constants, Effect of oxygen demanding wastes on river[deoxygenation, reaeration], COD, Oil, Greases, pH. Lake: Eutrophication [Definition, source and effect]. Ground water: Aquifers, hydraulic gradient, ground water flow (Definition only) Standard and control: Waste water standard [BOD, COD, Oil, Grease], Water Treatment system [coagulation and flocculation, sedimentation and filtration, disinfection, hardness and alkalinity, softening] Wastewater treatment system, primary and secondary treatments [Trickling filters, rotating biological contractor, Activated sludge, sludge treatment, oxidation ponds] tertiary treatment definition. Water pollution due to the toxic elements and their biochemical effects: Lead, Mercury, Cadmium, and Arsenic.</p>	6	15
05	<p>Land Pollution</p> <p>Lithosphere, Internal structure of earth, rock and soil 1L Solid Waste: Municipal, industrial, commercial, agricultural, domestic, pathological and hazardous solid wastes, Recovery and disposal method- Open dumping, Land filling, incineration, composting, recycling. Solid waste management and control (hazardous and biomedical waste).</p>	4	10

06	Noise Pollution Definition of noise, effect of noise pollution, noise classification [Transport noise, occupational noise, neighbourhood noise] Definition of noise frequency, noise pressure, noise intensity, noise threshold limit value, equivalent noise level,(18hr Index), Ldn. Noise pollution control.	5	5				
07	Environmental Management Environmental impact assessment, Environmental Audit, Environmental laws and protection act of India, Different international environmental treaty/ agreement/ protocol.	5	5				
Sub Total:		36	70				
Internal Assessment Examination & Preparation of Semester Examination		4	30				
Total:		40	100				
Name of Author	Title of the Book	Edition/ISSN/ISBN	Name of the Publisher				
G. M.Masters,	Introduction to Environmental Engineering and Science		Prentice-Hall of India Pvt. Ltd., 1991				
Reference Books:							
A. K. De	Environmental Chemistry		New Age International				
End Semester Examination Scheme.		Maximum Marks-70.	Time allotted-3hrs.				
Group	Unit	Objective Questions (MCQ only with the correct answer)		Subjective Questions			
		No of question to be set	Total Marks	No of question to be set	To answer	Marks per question	Total Marks
A	1 to 5	10	10				



B	1 to 5			5	3	5	60
C	1 to 5			5	3	15	
<ul style="list-style-type: none"> • Only multiple choice type question (MCQ) with one correct answer are to be set in the objective part. • Specific instruction to the students to maintain the order in answering objective questions should be given on top of the question paper. 							
Examination Scheme for end semester examination:							
Group	Chapter	Marks of each question	Question to be set	Question to be answered			
A	All	1	10	10			
B	All	5	5	3			
C	All	15	5	3			



Name of the Course: B.Sc. in Information Technology (AI)	
Subject: Major Project I	
Course Code: BITAI281	Semester: II
Duration: 12 Hrs.	Maximum Marks: 100
Teaching Scheme	Examination Scheme
Theory: 0	End Semester Exam: 100
Tutorial: 0	Attendance: 0
Practical: 2	Continuous Assessment: 0
Credit: 1	Practical Sessional internal continuous evaluation: 40
	Practical Sessional external examination: 60
Contents	
Students will do projects on application areas of latest technologies and current topics of societal relevance.	