

HINDU COLLEGE OF ENGINEERING, SONEPAT**LECTURE PLAN****SEMESTER/CLASS**

M.TECH. CSE II

SESSION

JAN. - JUNE 2018

SUBJECT: AHPCS**SUBJECT CODE :** CSE 502B**SESSIONAL MARKS: 25****THEORY MARKS: 75****DURATION OF EXAMS: 3 HOURS****NAME OF TEACHER :** SANDEEP GUPTA**DEPARTMENT :** CSE**OBJECTIVES OF CONCERNED SUBJECT:**

To provide the knowledge of different Architectures of Computer Systems for improving the Efficiency & Performance

OUTCOME OF CONCERNED SUBJECT:

The student will attain the knowledge about the Characteristics & Specifications of different Architectures

Lecture No.	Lecture Dates	TOPICS	TEXT/REFERENCE BOOKS
1-3	08/01/18, 09/01/18, 10/01/18	Introduction: review of basic computer architecture, quantitative techniques in computer design	J.L. Hennessy and D.A. Patterson, Computer Architecture: A Quantitative Approach, Morgan Kaufmann
4-5	11/01/18, 15/01/18	Measuring and reporting performance. CISC and RISC processors.	J.L. Hennessy and D.A. Patterson, Computer Architecture: A Quantitative Approach, Morgan Kaufmann
6-8	16/01/18, 23/01/18, 24/01/18	Pipelining : Basic concepts, instruction and arithmetic pipeline Data hazards, Control hazards, and structural hazards, techniques for handling hazards,	J.L. Hennessy and D.A. Patterson, Computer Architecture: A Quantitative Approach, Morgan Kaufmann
9-11	25/01/18, 29/01/18, 30/01/18	Exception handling. Pipeline optimization techniques. Compiler techniques for improving performance	J.L. Hennessy and D.A. Patterson, Computer Architecture: A Quantitative Approach, Morgan Kaufmann
12-13	31/01/18,	Hierarchical memory technology: Inclusion, Coherence and locality properties	J.L. Hennessy and D.A. Patterson, Computer Architecture: A Quantitative Approach, Morgan

	01/02/18		Kaufmann
14-16	05/02/18, 06/02/18, 07/02/18	Cache memory organizations, Techniques for reducing cache misses. Virtual memory organization, mapping and management techniques, memory replacement policies	J.L. Hennessy and D.A. Patterson, Computer Architecture: A Quantitative Approach, Morgan Kaufmann
17-19	08/02/18, 12/02/18, 13/02/18	Instruction-level parallelism: basic concepts, techniques for increasing ILP, superscalar, super-pipelined and VLIW processor architectures. Array and vector processors	Kai Hwang, Advanced Computer Architecture: Parallelism, Scalability, Programmability, McGraw-Hill
20-21	15/02/18, 19/02/18	Multiprocessor architecture: taxonomy of parallel architectures	Kai Hwang, Advanced Computer Architecture: Parallelism, Scalability, Programmability, McGraw-Hill
22-23	20/02/18, 21/02/18	Centralized shared –memory architecture: synchronization, memory consistency, interconnection networks. Distributed shared-memory architecture. Cluster computers	J.L. Hennessy and D.A. Patterson, Computer Architecture: A Quantitative Approach, Morgan Kaufmann
24-25	26/02/18, 27/02/18	Non von Neumann architectures: data flow computers, reduction computer architectures, systolic architectures	J.L. Hennessy and D.A. Patterson, Computer Architecture: A Quantitative Approach, Morgan Kaufmann
REMAINING LECTURES		<i>REVISION OF WHOLE SYLLABUS</i>	

TEXT/REFERENCE BOOKS:

- A. J.L. Hennessy and D.A. Patterson, Computer Architecture: A Quantitative Approach, Morgan Kaufmann.
- B. Kai Hwang, Advanced Computer Architecture: Parallelism, Scalability, Programmability, McGraw-Hill
- C. K.A. Parthasarathy, P. S. Kumar, Fundamentals of Computer Architecture, Vijay Nicole

Home Assignments: 4 –5 assignments are given during the semester.

Evaluation Procedure

1.	Surprise Quiz/ Tutorial Test	5 Marks
2.	Assignment / Project / Performance in the Class	5 Marks
3.	Minor Tests (Two tests having equal weightage)	15 Marks

	Minor Test I : 06 – 09 March, 2018	
	Minor Test II : 17 -20 April, 2018	
4.	Major test (University Examination)	75 Marks

Attendance Record – Candidate should attend at least 75% attendance of the total classes held of the subject

Chamber Consultation Hour: Any vacant period.

Note:

1. In the semester examination, the examiner will set 08 questions in all selecting two from each unit (1 & 2 from unit I, 3 & 4 from unit II, 5 &6 from unit III and 7 & 8 from unit IV). The students will be required to attempt only 5 questions selecting at least one question from each unit. All questions will carry equal marks.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.



LECTURE PLAN

SEMESTER/CLASS

M.TECH. CSE 2ND

SESSION

JAN. - JUNE 2018

SUBJECT: COMPUTATIONAL INTELLIGENCE

SUBJECT CODE: CSE504B

SESSIONAL MARKS: 25

THEORY MARKS: 75

DURATION OF EXAMS: 3 HOURS

NAME OF TEACHER: MRS. SONIA JUNEJA & MR. NITIN JAIN

DEPARTMENT: CSE/IT

OBJECTIVES OF CONCERNED SUBJECT:

- i) To provide the knowledge of Computational Intelligence techniques
- ii) To enhance the skill set about the fundamental concepts of Genetic Algorithms, Multi Criteria Decision Making, Neural Networks, Fuzzy Logic, Machine Learning, Pattern Classification, Recognition & Optimization

OUTCOME OF CONCERNED SUBJECT:

- i) The student will get the opportunity to implement Research on the topic of his/her own interest.
- ii) The student will undergo hands on practice on the simulator in the laboratory of the concerned subject.

Lecture No.	Lecture Dates	TOPICS	TEXT/ REFERENCE BOOKS
1-3	08/01/18, 09/01/18, 10/01/18	Unit I: Fundamentals of Evolutionary Computation Techniques: Design and Analysis of Genetic Algorithms, Evolutionary Strategies, Evolutionary Programming	A, C
4-6	11/01/18, 15/01/18, 16/01/18	Unit II: Optimization Techniques: Particle Swarm Optimization, Ant Colony Optimization	D
7-11	23/01/18, 24/01/18, 25/01/18, 29/01/18, 30/01/18	Unit II: Artificial Immune Systems, Harmony Search, Honey-Bee Optimization, Memetic Algorithms, Co-Evolution, Multi-Objective Optimization, Artificial Life, Simulated Annealing and Tabu Search, Constraint Handling	A, D
12-13	31/01/18, 01/02/18	<i>Revision of Unit I & Unit II</i>	

14-17	05/02/18, 06/02/18, 07/02/18, 08/02/18	Unit III: Fuzzy Logic and Neural Networks: Fuzzy Logic, Fundamentals of Neural Networks, Advanced Neural Network Architectures and Hybrid Techniques Unit IV: Applications of Evolutionary Techniques: Application of Computational Intelligence and Machine Learning	A, B, E
18-20	12/02/18, 13/02/18, 15/02/18	Unit IV: Techniques to Classification, Prediction, Pattern Recognition and Optimization Problems	D
21-22	19/02/18, 20/02/18	<i>Revision of Unit III & Unit IV</i>	
REMAINING LECTURES		REVISION OF WHOLE SYLLABUS	

TEXT/REFERENCE BOOKS:

- A. Computational Intelligence - Concepts to Implementations by Eberhart & Shi
- B. Stephen Marsland, Machine Learning: An Algorithmic Perspective, CRC Press, 2009
- C. Introduction to Genetic Algorithms by Melanie Mitchell
- D. Daniel Ashlock, Evolutionary Computation for Modeling and Optimization, 2005
- E. Introduction to Artificial Neural Systems, Jacek. M. Zurada, PWS Publishing Company, 1992
ISBN 0-534-95460-X

Evaluation Procedure:

1.	Surprise Quiz/ Tutorial Test	5 Marks
2.	Performance in the Class	5 Marks
3.	Minor Tests (Two tests having equal weightage) Minor Test I : 06 – 09 March, 2018 Minor Test II : 17 -20 April, 2018	15 Marks
4.	Major test (University Examination)	75 Marks

Attendance Record – Candidate should attend at least 75% attendance of the total classes held of the subject

Chamber Consultation Hour: Any vacant period.

Note:

1. In the semester examination, the examiner will set 08 questions in all selecting two from each unit (1 & 2 from unit I, 3 & 4 from unit II, 5 & 6 from unit III and 7 & 8 from unit IV). The students will be required to attempt only 5 questions selecting at least one question from each unit. All questions will carry equal marks.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.



LECTURE PLAN

SEMESTER/CLASS M.TECH. CSE 2ND

SESSION JAN. - JUNE 2018

SUBJECT: INFORMATION SECURITY AND DATA HIDING

SUBJECT CODE: CSE506B

SESSIONAL MARKS: 25

THEORY MARKS: 75

DURATION OF EXAMS: 3 HOURS

NAME OF TEACHER: MRS. VANDNA & MR. NITIN JAIN

DEPARTMENT: CSE/IT

OBJECTIVES OF CONCERNED SUBJECT:

To provide the knowledge of different Multimedia formats (Image, Audio, Video etc.), Cryptography, Digital Signatures, Steganography & Watermarking

OUTCOME OF CONCERNED SUBJECT:

The student will get the opportunity to develop his/her career in Information Security System using Cryptography, Digital Signatures with implementation of Steganography & Watermarking

Lecture No.	Lecture Dates	TOPICS	TEXT/ REFERENCE BOOKS
1-3	08/01/18, 09/01/18, 10/01/18	Unit I: Information Security: Cryptography, Key Exchange methods such as Public and Private Keys	C
4-5	15/01/18, 16/01/18	Unit I: Digital Signatures	C
6-7	23/01/18, 29/01/18	Unit II: Format of Image, Video and Audio: Different formats of Multimedia Files such as Images, Audios & Videos	D
8-11	30/01/18 05/02/18, 06/02/18, 07/02/18	<i>Numericals based on Unit I & Unit II and Revision</i>	

12-13	12/02/18, 13/02/18	Unit III: Steganography: History of Steganography, Hiding Data in Multimedia Files, Least Significant Bit method, Latest Algorithms for Data Hiding. Comparison of Different Steganographic Techniques, Applications of steganography	A, B
14-15	19/02/18, 20/02/18	Unit IV: Watermarking : Copyright Protection Mechanisms, Latest Watermarking Algorithms, Comparison of Watermarking Techniques, Applications of Watermarking	A, B
16-18	21/02/18, 26/02/18, 27/02/18	<i>Numericals based on Unit III & Unit IV and Revision</i>	
REMAINING LECTURES		REVISION OF WHOLE SYLLABUS	

TEXT/REFERENCE BOOKS:

- A.** Information Hiding: Steganography and Watermarking - Attacks and Countermeasures (Advances in Information Security, Volume 1) Johnson, Neil F. / Duric, Zoran / Jajodia, Sushil G. 2001.
- B.** Information Hiding: Techniques for Steganography and Digital Watermarking , Katzenbeisser,
- C.** Cryptography and Network Security, Tata McGraw Hill, 2003
- D.** Multimedia: Making it Work, 8th Edition, Tay Vaughan, McGraw Hill Education

Evaluation Procedure:

1.	Surprise Quiz/ Tutorial Test	5 Marks
2.	Performance in the Class	5 Marks
3.	Minor Tests (Two tests having equal weightage) Minor Test I : 06 – 09 March, 2018 Minor Test II : 17 -20 April, 2018	15 Marks
4.	Major test (University Examination)	75 Marks

Attendance Record – Candidate should attend at least 75% attendance of the total classes held of the subject

Chamber Consultation Hour: Any vacant period.

Note:

1. In the semester examination, the examiner will set 08 questions in all selecting two from each unit (1 & 2 from unit I, 3 & 4 from unit II, 5 & 6 from unit III and 7 & 8 from unit IV). The students will be required to attempt only 5 questions selecting at least one question from each unit. All questions will carry equal marks.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.



LECTURE PLAN

SEMESTER/CLASS

M.Tech. CSE 2nd

SESSION

JAN. - JUNE 2018

SUBJECT: SD&C

SUBJECT CODE : CSE-552 B

SESSIONAL MARKS: 25

THEORY MARKS: 75

DURATION OF EXAMS: 3 HOURS

NAME OF TEACHER : Ms. Preeti

DEPARTMENT : CSE/IT

OBJECTIVES OF CONCERNED SUBJECT:

1. The emphasis is on the knowledge needed to be able to model, design, implement and evaluate larger software systems effectively.
2. Describe data models, object models, context models and behavioural models.
3. Understanding of different software architectural styles.
4. Understand fundamentals of object-oriented programming including defining classes, invoking methods, using class libraries, etc.

OUTCOME OF CONCERNED SUBJECT:

1. Use the characteristics of an object-oriented programming language in a program.
2. Make effective use of UML, along with design strategies such as defining a software architecture, separation of concerns and design patterns.
3. Use the basic object-oriented design principles in computer problem solving.
4. Use the basic principles of software engineering in managing complex software project.

Lecture No.	Lecture Dates	TOPICS	TEXT/REFERENCE BOOKS
1-2	8-1-18 9-1-18	Software Design: Design concepts, the design model,	B
3-4	10-1-18 11-1-18 15-1-18	Software architecture, Architectural design, data design,	B
5-6	16-1-18 17-1-18	Component level design, and user interface design.	B
7-9	18-1-18 23-1-13	Object Modeling and Design: OMT, visual modeling, UML, Rational Rose Tool,	A,B
10-13	24-1-18 25-1-18	Classes, objects, relationships, key abstractions, common mechanisms, Diagrams, class diagrams, advanced classes, advanced relationships,	

	29-1-18 30-1-18		
14-15	31-1-18 1-2-18	interfaces, types, roles, packages, instances,	A,B
16-17	5-2-18 6-2-18	object diagrams, interactions,	A
18-21	7-2-18 8-2-18 12-2-18 13-2-18	use cases, use case diagrams, interaction diagrams, activity diagrams,	B
22-23	15-2-18 19-2-18	events and signals, state machines, processes, threads, state chart diagrams, components,	B
24-26	20-2-18 21-2-18 22-2-18	Deployment, collaborations, patterns and frameworks, component diagrams,	B
27-29	26-2-18 27-2-18 28-2-18	Systems and models, code generation and reverse engineering.	B
30-31	1-3-18 5-3-18	Revision for Minor Test 1	
32-34	12-3-18 13-3-18 14-3-18	Software Construction: Basics of object-oriented approach, object-oriented programming and languages, Scope of class members-public, private, protected. Class constructor, destructor, copy constructor, virtual destructor.	C,D
35-36	15-3-18 19-3-18	Derived classes, scope of derivation-public, private, protected. Virtual functions,	C,D
37-39	20-3-18 21-3-18 22-3-18	Function overloading. Friend functions and friend classes, Operator overloading, Dynamic memory allocation to classes and class members, new and delete operators.	C,D
40-41	26-3-18 27-3-18	Overloading new and delete operators. Explicit type conversion operators. Input output streams	C,D
42	28-3-18	Stream class hierarchies, standard I/O objects: cin,	C,D

		cout, cerr, overloading <<, >> operators,	
43-45	2-4-18 3-4-18 4-4-18	File Streams, opening, reading, writing to file. File pointers and their manipulators.	C,D
46-47	5-4-18 9-4-18	Introduction to templates and container classes. comparison	C,D
48-50	10-4-18 11-4-18 onwards	Revision for Minor Test 2. Previous Years Question Paper Discussion	

TEXT/REFERENCE BOOKS:

- A. J. Rumbaugh, et.al., **Object-Oriented Modeling and Design, Prentice Hall (2004) 2nd edition.**
- B. Roger S. Pressman: **Software Engineering, A Practitioner's Approach, McGrawHill International Edition (2009) 7th edition.**
- C. Marget A.Eills and Bjame Stroustrup, **The Annotated C++ Reference Manual, Addison Wesley (1990).**
- D. **Object oriented Programming with C++ by E Balagurusamy, 2001, Tata McGraw-Hill.**

Home Assignments: 4 –5 assignments are given during the semester.

Evaluation Procedure

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LECTURE PLAN

SEMESTER/CLASS M.TECH. CSE 2ND

SESSION JAN. - JUNE 2018

SUBJECT: GREEN COMPUTING

SUBJECT CODE: CSE560B

SESSIONAL MARKS: 25

THEORY MARKS: 75

DURATION OF EXAMS: 3 HOURS

NAME OF TEACHER: MR. ASHU BANSAL & MR. NITIN JAIN

DEPARTMENT: CSE/IT

OBJECTIVES OF CONCERNED SUBJECT:

To provide the knowledge of different types of Computing, Virtualization, Software Sustainability, Operating System Support etc.

OUTCOME OF CONCERNED SUBJECT:

The student will get the opportunity to implement Research on the topic of his/her own interest.

Lecture No.	Lecture Dates	TOPICS	TEXT/ REFERENCE BOOKS
1-3	08/01/18, 09/01/18, 10/01/18	Unit I: Definition of the term, Origins, Fundamentals, Regulations and Industry initiatives-Government, Industry Approaches to Green Computing- Middleware Support, Compiler Optimization, Product longevity	A
4-5	11/01/18, 15/01/18	Unit I: Software induced Energy Consumption, Measurement & Rating	A
6-8	16/01/18, 23/01/18, 24/01/18	Unit II: Algorithmic Efficiency, High Performance Computing, Sustainable Computing, Resource Allocation	A
9-10	25/01/18, 29/01/18	Unit II: Virtualization, Server Consolidation	B
11-12	30/01/18, 31/01/18	Unit II: Technical aspects of Software regarding environment awareness like Green Power Indicator, Unit III: Terminal Servers, Power Management, Operating System Support, Power Supply, Storage, Video card, Display, Tools for Monitoring	B, C

13-14	01/02/18, 05/02/18	Revision of Unit I & Unit II	
15-16	06/02/18, 07/02/18	Unit III: Model for Sustainable Software Engineering, Role of Generic Knowledge-Base in enhancing Sustainability, Sustainability relevant criteria, Sustainable Development	B
17-18	08/02/18, 12/02/18	Unit IV: Green Mobile, Optimizing for Minimizing Battery Consumption, Web, Temporal and Spatial Data Mining Materials Recycling, Telecommuting, Metrics for Green Computing	B, C
19-20	13/02/18, 15/02/18	Unit IV: Techniques to measure Energy Consumption of Software Components, Requirements and Usage Scenarios in reducing Energy Consumption, Modeling Energy Consumption	B
21-22	19/02/18, 20/02/18	Revision of Unit III & Unit IV	
REMAINING LECTURES		REVISION OF WHOLE SYLLABUS	

TEXT/REFERENCE BOOKS:

- A.** Green Computing and Green IT Best Practices on Regulations and Industry Initiatives, Virtualization, Power Management, Materials Recycling and Telecommuting by Jason Harris, Emereo Publishing
- B.** Sustainable ICTs and Management Systems for Green Computing by Wen-Chen Hu (University of North Dakota, USA) and Naima Kaabouch (University of North Dakota, USA), IGI Global Press
- C.** Green Computing: Large-Scale Energy Efficiency by Wu-chun Feng, Blacksburg, USA (Eds.), CRC Press

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