

Academic Year
2022-23
VIII SEM CSE
Handbook
(V18 Regulation)

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INSTITUTE



VISION MISSION

INSTITUTE VISION AND MISSION

VISION

To be a premier technological institute striving for excellence with global perspective and commitment to the nation.

MISSION

- To produce engineering graduates of professional quality and global perspective through Learner Centric Education.
- To establish linkages with government, industry and research laboratories to promote R&D activities and to disseminate innovations.
- To create an eco-system in the institute that leads to holistic development and ability for life-long learning..



DEPARTMENT



VISION MISSION

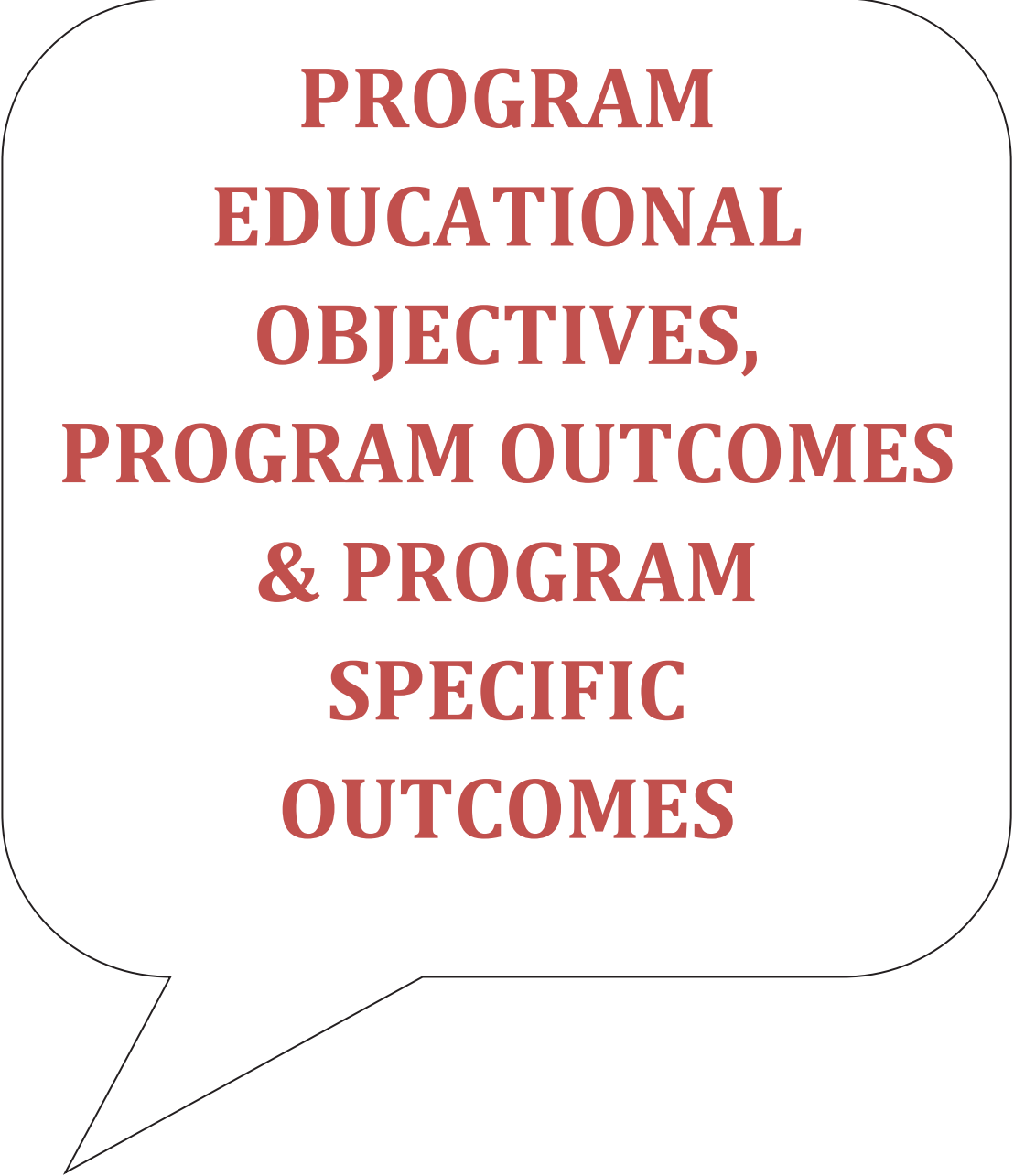
DEPARTMENT VISION AND MISSION

Vision:

- To evolve as a centre of academic and research excellence in the area of Computer Science and Engineering.

Mission :

- To utilize innovative learning methods for academic improvement.
- To encourage higher studies and research to meet the futuristic requirements of Computer Science and Engineering.
- To inculcate Ethics and Human values for developing students with good character



**PROGRAM
EDUCATIONAL
OBJECTIVES,
PROGRAM OUTCOMES
& PROGRAM
SPECIFIC
OUTCOMES**

Program Educational Objectives (PEOs)

Graduates of this programme will :

PEO 1: Adapt to evolving technology.

PEO 2: Provide optimal solutions to real time problems.

PEO 3: Demonstrate his/her abilities to support service activities with due consideration for Professional and Ethical Values.

Programme Specific Outcomes (PSO s):

A graduate of the Computer Science and Engineering Program will be able to:

PSO 1: Use Mathematical Abstractions and Algorithmic Design along with Open Source Programming tools to solve complexities involved in Programming. [K3]

PSO 2: Use Professional engineering practices and strategies for development and maintenance of software. [K3]

Program Outcomes (POs):

Computer Science Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of Mathematics, Science, Engineering Fundamentals and Concepts of Computer Science Engineering to the solution of complex Engineering problems. [K3]
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of Mathematics, Natural Sciences and Computer Science. [K4]
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specific needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations. [K5]
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. [K5]
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex Engineering activities with an understanding of the limitations. [K3]
6. **The Engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional Engineering practice. [K3]
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. [K3]
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the Engineering practice. [K3]
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. [K6]
10. **Communication:** Communicate effectively on complex Engineering activities with the Engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. [K2]
11. **Project management and finance:** Demonstrate knowledge and understanding of the Engineering and Management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. [K6]
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. [K1]

ACADEMIC CALENDAR

✉ : principal@sriavasaviengg.ac.in
svec.a8@gmail.com



☎ : 08818- 284344, 355

SRI VASAVI ENGINEERING COLLEGE (AUTONOMOUS)

(Sponsored by Sri Vasavi Educational Society)

(Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada)

(Accredited by NAAC with 'A' Grade, Recognized by UGC under section 2(f) & 12(B))

(NBA Accreditation to B.Tech., EEE, CSE, ME and ECE Branches for 3 Years)

Pedatadepalli, **TADEPALLIGUDEM** – 534 101. W.G.Dist. (A.P)

Principal's Office
Date: 02-08-2022

Academic Calendar

For B.Tech VII and VIII Semesters , Academic Year 2022-23

VII Semester			
Description	From	To	Weeks
Commencement of Class Work	04.08.2022		
I Unit of Instructions	04.08.2022	24.09.2022	7 W
I Mid Examinations	26.09.2022	01.10.2022	1 W
II Unit of Instructions	03.10.2022	19.11.2022	7 W
II Mid Examinations	21.11.2022	26.11.2022	1 W
Comprehensive Examinations	28.11.2022	03.12.2022	1 W
Preparation and Practicals	05.12.2022	09.12.2022	1 W
End Examinations	12.12.2022	23.12.2022	2 W
Commencement of VIII Semester Class Work	26.12.2022		
VIII Semester			
I Unit of Instructions	26.12.2022	11.02.2023	7 W
I Mid Examinations	13.02.2023	18.02.2023	1 W
II Unit of Instructions	20.02.2023	08.04.2023	7 W
II Mid Examinations & Comprehensive Examinations	10.04.2023	18.04.2023	1 W
End Examinations	24.04.2023	02.05.2023	1 W
Project Viva Voce Examinations	01.05.2023	06.05.2023	1 W

PRINCIPAL

Copy to : ALL

Vision

To be a premier technological institute striving for excellence with global perspective and commitment to the nation.

Mission

- To produce Engineering graduates of professional quality and global perspective through learner-centric education.
- To establish linkages with government, industry and Research laboratories to promote R&D activities and to disseminate innovations.
- To create an eco-system in the institute that leads to holistic development and ability for life-long learning.



CLASS CONSOLIDATED TIME TABLE

Class: VIII Semester

w.e.f.: 26-12-2022

Section: A

Class Coordinator: Mrs. P. Ujawala Sai

Room No: B-403

Periods	1	2	3	4	1:00PM 2:00PM	5	6	7
Time Day	(09.30 AM- 10.30 AM)	(10.30 AM- 11.20 AM)	(11.20 AM- 12.10 PM)	(12.10 PM- 01.00 PM)		(02.00 PM- 02.50 PM)	(02.50 PM- 03.40 PM)	(03.40 PM- 04.30 PM)
Mon	CS		SPM	<i>LIBRARY</i>	Lunch Break	BEPG		SPM
Tue	BEPG		CS			SPM	<i>SPORTS</i>	
Wed	<i>PROJECT WORK (PART-B)</i>					<i>PROJECT WORK (PART-B)</i>		

Staff Details:

S. No.	Course Code	Course Name	Section
1.	V18CST36	Software Project Management (SPM) - (<i>Elective-V</i>)	Mrs.D.S.L. Manikanteswari
2.	V18MBT43	Cyber Security (CS) - (<i>Elective-VI</i>)	Mrs. P. Ujawala Sai
3.	V18EEOE8	Basics of Electrical Power Generation (BEPG) - (<i>Open Elective -III</i>)	Mr. Shaik Moulali
4.	V18CSP02	Project Work (Part-B)	Mrs. M S Radha Mangamani

Head of the Department

Head of the Department
Dept. of Computer Science & Engineering
Sri Vasavi Engineering College
TADEPALLIGUDEM-534 101

COURSE STRUCTURE

VIII - SEMESTER

VIII - Semester

S.No.	Course Code	Course	L	T	P	C
1	Elective – V					
	V18CST36	1. Software Project Management	3	0	0	3
	V18CST37	2. Big Data Analytics				
	V18CST38	3. Soft Computing				
V18CST39	4. Cloud Computing					
2	Elective – VI					
	V18CST40	1. Software Architecture and Design Patterns	3	0	0	3
	V18CST41	2. Middleware Technologies				
	V18CST42	3. Natural Language Processing				
V18CST43	4. Cyber Security					
3	Open Elective – III (Interdisciplinary)	OPE III(1-3)	3	0	0	3
4	V18CSP02	Project Work (Part-B)	0	0	16	8
Total			9	0	16	17

Total Contact Hours: 25



**LESSON
PLANS**

Software Project Management

Academic Year : 2022-23

Semester : VIII

Name of the Course: Software Project Management

Programme: B.Tech

Sections :A,B,C&D

Course Code: V18CST36

COURSE OUTCOMES (Along with Knowledge Level):

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

S.No.	CO No.	Course Outcome	BTL
1.	CO1	Describe Software Project Management Terminology and Methodology.	[K2]
2.	CO2	Describe various Software Lifecycle Models, Process Artifacts and Workflows.	[K2]
3.	CO3	Explain various Effort Estimation Techniques for Project Planning.	[K2]
4.	CO4	Demonstrate Risk Management Concepts.	[K3]
5.	CO5	Develop Project Status Reports for tracking and controlling Software Deliverables.	[K3]
6.	CO6	Describe Software Quality Metrics.	[K2]

Text Books:

1. Software Project Management, Bob Hughes & Mike Cotterell, TMH
2. Software Project Management, Walker Royce, Pearson Education, 2005.
3. Software Project Management in Practice, Pankaj Jalote, Pearson

Reference Books:

1. Software Project Management, Joel Henry, Pearson Education.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5	CO6
Targeted Proficiency Level		60	60	60	60	60	60
Targeted level of Attainment	Level 3	70	70	70	70	70	70
	Level 2	65	65	65	65	65	65
	Level 1	60	60	60	60	60	60

Lecture Plan

Unit-1

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Dissemination of Vision, Mission of the Dept and PEOs, Pos,& PSOs of the Programme			Lecture	BB
2	CO1	Describe Software Project Management Terminology. And comparison with other projects	K2	1	Lecture	BB
3		Describe software project management activities.	K2	1	Lecture	BB
4		Describe various Categories in software Projects	K2	1	Lecture	BB
5		Identify types of stake holders, objectives and goals in software project management.	K1	2	Lecture	BB
6		Describe Stepwise project planning and project scope and Objectives.	K2	1	Lecture	BB
7		Identify Project products and Deliverables.	K1	1	Lecture	BB
8		Outline Effort Estimation and Infrastructure.	K2	1	Lecture	BB+ICT

Unit-2

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO2	Outline various Life Cycle Models.	K1	1	Lecture	BB
2		Classify technologies: Process Models	K2	2	Lecture	BB
3		Describe Software Prototyping.	K2	1	Lecture	BB

4		Explain Iterative and Incremental Process Framework.	K2	1	Lecture	BB
5		Classify Project Life Cycle Phases.	K2	2	Lecture	BB+ICT
6		Explain various Artifacts of Software Process.	K2	2	Lecture	BB
7		Explain Process Workflows.	K2	2	Lecture	BB

Unit-3

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO3	Describe Software Effort Estimation Techniques.	K1	1	lecture	BB
2		Discuss Function Point Analysis.	K2	1	lecture with Discussion	BB
3		Explain SLOC: Software Metrics and Measurements.	K2	2	lecture	BB + ICT
4		Describe COCOMO: A Parametric Model	K2	2	lecture	BB + ICT
5		Discuss Use-Case based Estimation Techniques.	K2	1	lecture with Discussion	BB
6		Explain various Activity Identification Approaches: Sequencing and Scheduling Activities.	K2	2	lecture	BB
7		Discuss Network Planning Models in Project Scheduling: Critical Path Analysis.	K2	2	lecture with Discussion	BB

Unit- 4

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO4	Describe various Risk Management Categories.	K1	2	Lecture	BB
2		Discuss concepts of Risk Identification, Assessment, Planning and Management.	K2	2	Lecture with discussion	BB+ICT
3		Demonstrate PERT Technique.	K3	1	Lecture	BB
4		Explain Monte Carlo Method for project estimation.	K2	1	Lecture	BB
5		Describe Resource Allocation types	K2	1	Lecture	BB

Unit-5

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO5	Describe the concept of Project Monitoring and Control.	K1	1	lecture	BB
2		Explain Progress Monitoring, and Cost Monitoring in Project Control.	K2	2	lecture	BB
3		Explain Earned Value Analysis in Cost Monitoring.	K2	2	lecture	BB + ICT
4		Discuss various Defects and Issues in Project Monitoring and Control.	K2	1	Lecture	BB + ICT
5		Develop Project Status Reports with Sample Case Study.	K3	1	lecture	BB

6		Discuss various types of resources and resource requirements in Software Project Management.	K2	2	lecture with discussion	BB
7		Explain the concept of Resource Allocation and Scheduling.	K2	1	Lecture with practical	BB

Unit-6

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO6	Define Software Quality and Quality Factors.	K1	1	Lecture	BB + ICT
2		Explain Software Quality Planning.	K2	1	Lecture	BB + ICT
3		Outline various Quality Measures in Software Quality Management.	K1	2	Lecture	BB + ICT
4		Discuss Quantitative Approaches to Quality Management.	K2	2	Lecture with Discussion	BB + ICT
5		Describe importance of quality and ISO 9126.	K2	1	Lecture	BB + ICT
6		Explain the concepts of product Quality and Process Quality.	K2	1	Lecture	BB + ICT
7		Describe Statistical Process Control Capability Maturity Model.	K2	2	Lecture with Discussion	BB + ICT
8		Discuss various Techniques to Enhance Software Quality.	K2	2	Lecture with Discussion	BB + ICT

Total No. of Classes: 60

Cyber Security

Academic Year : 2022-23
Year/ Semester : VIII Sem
Name of the Course: Cyber Security

Programme: B.Tech
Section: A, B, C, D
Course Code: V18CST43

Course Outcomes (Along with Knowledge Level):

S.No.	CO No.	Course Outcome	BTL
1.	CO1	Describe about Cybercrimes.	K2
2.	CO2	Explain Cyber criminals and their attacks.	K2
3.	CO3	Illustrate Cybercrimes and security in mobile devices	K2
4.	CO4	Discuss about the Tools and methods used to overcome Cybercrimes.	K2
5.	CO5	Discuss about Cyber Laws and IT Acts.	K2
6.	CO6	Explain about Computer Forensics.	K2

Text Books: 1. Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, NinaGodbole, SunitBelapure, 1st edition, Wiley.

Reference Books: 1. Principles of Information Security, Micheal E. Whitman and Herbert J. Mattord, 4th edition, Cengage Learning. 2. Information Security the complete reference, Mark Rhodes, Ousley, 2nd edition, MGH

Cos		CO1	CO2	CO3	CO4	CO5	CO5	CO6
Targeted Proficiency Level		60	60	60	60	60	60	60
Targeted level of Attainment	Level 3	60	60	60	60	60	60	60
	Level 2	55	55	55	55	55	55	55
	Level 1	50	50	50	50	50	50	50

Lecture Plan:

S.No.	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO1	Unit-1 Introduction to Cybercrime Cybercrime: Definition and Origins of the Word	K2	1	Lecture	BB+ICT
		Cybercrime and Information Security			Lecture	BB+ICT
		Who are Cybercriminals?	K2	1	Lecture with Group Discussion	BB+ICT
		Classifications of Cybercrimes	K2	1	Lecture	BB+ICT
		Cybercrime: The Legal Perspectives Cybercrimes: An Indian Perspective	K2	1	Lecture	BB+ICT
		Cybercrime and the Indian ITA 2000	K2	1	Lecture with Group Discussion	BB+ICT
		A Global Perspective on Cybercrimes	K2	1	Lecture	BB+ICT
		Cybercrime Era: Survival Mantra for the Netizens	K2	1	Lecture	BB+ICT
		2	CO2	Unit-2: Cyber offenses- How Criminals Plan Them		
Introduction How Criminals Plan the Attacks	K2			1	Lecture	BB+ICT
Social Engineering	K2			1	Lecture	BB+ICT
Cyber stalking	K2			1	Lecture	BB+ICT
Cyber cafe and Cybercrimes	K2			1	Lecture	BB+ICT
Botnets: The Fuel for Cybercrime	K2			1	Lecture	BB+ICT
Attack Vector Cloud Computing.	K2			1	Lecture	BB+ICT
3	CO3	UNIT III: Cybercrime Mobile and Wireless Devices				
		Introduction	K2	1	Lecture	BB+ICT
		Proliferation of Mobile and Wireless Devices	K2	1	Lecture	BB+ICT
		Trends in Mobility	K2	1	Lecture	BB+ICT
		Credit Card Frauds in Mobile and Wireless Computing Era	K2	1	Lecture with Group Discussion	BB+ICT
		Security Challenges Posed by Mobile Devices	K2	1	Lecture	BB+ICT
		Registry Settings for Mobile Devices	K2	1	Lecture	BB+ICT
		Authentication Service Security	K2	1	Lecture	BB+ICT
Attacks on Mobile/CellPhones	K2	1	Lecture with Group	BB+ICT		

				Discussion	
		Mobile Devices: Security Implications for Organizations	K2	1	Lecture BB+ICT
		Organizational Measures for Handling Mobile	K2	1	Lecture BB+ICT
		Organizational Security Policies and Measures in Mobile Computing Era	K2	1	Lecture BB+ICT
		Laptops	K2	1	Lecture BB+ICT
4	CO4	UNIT IV: Tools and Methods Used in Cybercrime			
		Introduction	K2	1	Lecture BB+ICT
		Proxy Servers and Anonymizers	K2	1	Lecture BB+ICT
		Phishing	K2	1	Lecture with Group Discussion BB+ICT
		Password Cracking	K2	1	Lecture BB+ICT
		Key loggers and Spywares	K2	1	Lecture BB+ICT
		Virus and Worms	K2	1	Lecture with Group Discussion BB+ICT
		Trojan Horses and Backdoors	K2	1	Lecture BB+ICT
		Steganography	K2	1	Lecture BB+ICT
		DoS and DDoS Attacks	K2	1	Lecture BB+ICT
		SQL Injection	K2	1	Lecture BB+ICT
		Buffer Overflow	K2	1	Lecture BB+ICT
		Attacks on Wireless Networks	K2	1	Lecture with Group Discussion BB+ICT
		Phishing and Identity Theft: Introduction	K2	1	Lecture BB+ICT
Phishing, Identity Theft (ID Theft)	K2	1	Lecture BB+ICT		
5	CO5	UNIT V: Cybercrimes and Cyber security			
		The Legal Perspectives	K2	1	Lecture BB+ICT
		Introduction	K2	1	Lecture BB+ICT
		Why Do We Need Cyber laws: The Indian Context	K2	1	Lecture BB+ICT
		The Indian IT Act	K2	1	Lecture BB+ICT
		Challenges to Indian Law and Cybercrime Scenario in India	K2	1	Lecture BB+ICT
		Consequences of Not Addressing the Weakness in Information Technology Act	K2	1	Lecture BB+ICT
		Digital Signatures and the Indian IT Act	K2	1	Lecture BB+ICT
		Amendments to the Indian IT Act	K2	1	Lecture BB+ICT
		Cybercrime and Punishment	K2	1	Lecture BB+ICT

6	CO6	Unit-6 Understanding Computer Forensics				BB+ICT
		Introduction	K2	1	Lecture	BB+ICT
		Historical Background of Cyber forensics	K2	1	Lecture	BB+ICT
		Digital Forensics Science	K2	1	Lecture with Group Discussion	BB+ICT
		The Need for Computer Forensics	K2	1	Lecture	BB+ICT
		Cyber forensics and Digital Evidence,	K2	1	Lecture	BB+ICT
		Forensics Analysis of E-Mail	K2	1	Lecture with Group Discussion	BB+ICT
		Digital Forensics Life Cycle	K2	1	Lecture	BB+ICT
		Chain of Custody Concept	K2	1	Lecture	BB+ICT
		Network Forensics	K2	1	Lecture	BB+ICT
		Approaching a Computer Forensics Investigation	K2	1	Lecture	BB+ICT
		Computer Forensics and Steganography	K2	1	Lecture	BB+ICT
		Relevance of the OSI 7 Layer Model to Computer Forensics	K2	1	Lecture	BB+ICT
		Forensics and Social Networking Sites- The Security/Privacy Threats	K2	1	Lecture	BB+ICT
		Computer Forensics from Compliance Perspective	K2	1	Lecture	BB+ICT
		Challenges in Computer Forensics	K2	1	Lecture with Group Discussion	BB+ICT
		Special Tools and Techniques	K2	1	Lecture	BB+ICT
		Forensics Auditing	K2	1	Lecture	BB+ICT
		Anti-forensics	K2	1	Lecture with Group Discussion	BB+ICT

Total Hours = 67

Basics of Electrical Power Generation

Academic Year: 2022-23

Programme: B.Tech

Year/ Semester: VIII

Section: A,B,C,D

Name of the Course: Basics of Electrical Power Generation

Course Code : V18EEOE8

Course Outcomes (Along with Knowledge Level):

After successful completion of course the student will able to

S.No.	CO No.	Course Outcome	BTL
1.	CO1	Understand the various energy sources, substations and switchgear devices	(K2)
2.	CO2	Understand the principle of operation of different components of thermal power stations	(K2)
3.	CO3	Understand the principle of operation of different components of nuclear power stations	(K2)
4.	CO4	Understand the principle of operation of different components of hydro power stations	(K2)
5.	CO5	Understand the working of solar photo voltaic systems and applications	(K2)
6.	CO6	Understand the wind energy conversion systems, efficiency and power generation	(K2)

Text Books:

1. A Text Book on Power System Engineering by M. L. Soni, P. V. Gupta, U. S. Bhatnagar and A. Chakrabarti, Dhanpat Rai & Co. Pvt. Ltd.- 2nd edition, 2013.
2. Renewable Energy Resources, John Twidell and Tony Weir, Taylor and Francis-2nd edition, 2013.

Reference Books:

1. Elements of Electrical Power Station Design by – M V Deshpande, PHI, New Delhi-3rd edition, 2010.
2. Renewable Energy – Edited by Godfrey Boyle – oxford university Press, 3rd edition, 2013.
3. Electrical Power Systems by C. L. Wadhwa, 6th Edition, New Age International Publishers, 2018.
4. Non-conventional energy source – B.H.khan -TMH-2nd edition, 2017.
5. [https://nptel.ac.in/content/storage2/courses/108105053/pdf/L-02\(TB\)\(ET\)%20\(\(EE\)NPTEL\).pdf](https://nptel.ac.in/content/storage2/courses/108105053/pdf/L-02(TB)(ET)%20((EE)NPTEL).pdf)

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5	CO6
Targeted Proficiency Level		60%	60%	60%	60%	60%	60%
Targeted level of Attainment	Level 1	50	50	50	50	50	50
	Level 2	60	60	60	60	60	60
	Level 3	70	70	70	70	70	70

Lecture Plan:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	e-resources link(s)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching aids
UNIT-I: FUNDAMENTALS OF ELECTRICAL POWER SYSTEM							
1	Understand the various energy sources, substations and switchgear devices (K2)	Explain present Energy scenario (world and India)	https://powermin.gov.in/en/content/power-sector-glance-all-india	K2	2	Lecture & Discussion	Black board & PPT
2		Explain various Conventional and non-conventional energy sources	https://byjus.com/physics/conventional-and-nonconventional-sources-of-energy/	K2	1	Lecture & Discussion	Black board & PPT
3		Explain structure of electric power system	http://spintronicbbsr.org/lecturer_notes/epd%20EEE%20FIFTH%20SEMESTER%20BY%20SUNUL%20SIR.pdf	K2	1	Lecture	Black board & PPT
4		Explain classification of substations and switchgear devices	https://instrumentationtools.com/what-is-switchgear-and-electrical-substation/	K2	2	Lecture	Black board & PPT
Number of hours Required					6		
UNIT-II: THERMAL POWER STATIONS							
5	Understand the principle of operation of different components of thermal power stations (K2)	Discuss the Schematic arrangement & Selection of site for thermal power station	https://www.electrical4u.com/thermal-power-generation-plant-or-thermal-power-station/	K2	1	Lecture	Black board & PPT
6		Discuss the general layout of a thermal power plant showing paths of coal, steam, water, air, ash handling system	https://coalhandlingplants.com/thermal-power-plant/	K2	3	Lecture	Black board & PPT
7		Illustrate the components of the thermal power stations like Boilers, Superheaters, Economizers, electrostatic precipitators Condensers, feed water circuit, Cooling towers and Chimney	https://www.vssut.ac.in/lecture_notes/lecture1423005996.pdf	K2	4	Lecture	Black board & PPT
Number of hours Required					8		
UNIT-III: NUCLEAR POWER STATIONS							
8	Understand the principle of operation of different	Discuss the Location of nuclear power plant	https://www.vssut.ac.in/lecture_notes/lecture1423005996.pdf	K2	1	Lecture	Blackboard & PPT
9		Explain the Working principle of nuclear fission, nuclear fuels, nuclear chain reaction		K2	2	Lecture	Blackboard & PPT
10		Illustrate nuclear reactor		K2	2	Lecture	Blackboard

		Components: Moderators, Control rods, Reflectors and Coolants					& PPT
11		Discuss the types of nuclear reactors		K2	2	Lecture	Blackboard & PPT
12		Explain Radiation hazards and shielding, nuclear waste disposal		K2	2	Lecture	Blackboard & PPT
Number of hours Required					9		
UNIT – IV: HYDRO POWER STATIONS							
13	Understand the principle of operation of different components of hydro power stations (K2)	Discuss the Schematic arrangement, advantages and disadvantages	https://www.vssut.ac.in/lecture_notes/lecture1423005996.pdf	K2	2	Lecture	Blackboard & PPT
14		Choice of site constituents of hydro power plant, Hydro turbine		K2	3	Lecture	Blackboard & PPT
15		Discuss the Environmental aspects for selecting the sites and locations of hydro power stations		K2	1	Lecture	Blackboard & PPT
Number of hours Required					6		
UNIT-V: SOLAR POWER PLANT							
16	Understand the working of solar photovoltaic systems and applications (K2)	Discuss the Solar photovoltaic cell, module, array		K2	2	Lecture	Blackboard & PPT
17		Explain the construction of power plant & Efficiency of solar cells		K2	2	Lecture	Blackboard & PPT
18		Discuss the Cell I-V characteristics		K2	1	Lecture	Blackboard & PPT
19		Discuss Applications and System design: storage sizing and PV system sizing		K2	2	Lecture	Blackboard & PPT
20		Explain Equivalent circuit of solar cell, Series resistance and Shunt resistance		https://www.pveducation.org/pvcdrom/solar-cell-operation/shunt-resistance	K2	2	Lecture
Number of hours Required					9		

UNIT-VI: WIND POWER PLANT							
21	Understand the wind energy conversion systems, efficiency and power generation (K2)	Explain Sources of wind energy - Wind patterns	https://www.iare.ac.in/sites/default/files/IARE_EPGS_LN.pdf	K2	1	Lecture & Discussion	Blackboard & PPT
22		Discuss the Types of turbines, Horizontal axis and vertical axismachines		K2	2	Lecture	Blackboard & PPT
23		Explain the construction of power plant, Efficiency and Poweroutputofwindturbi ne		K2	2	Lecture	Blackboard & PPT
24		Selectionofgenerator(synchronous, induction) and Explain Power generation for utility grids.		K2	3	Lecture	Blackboard & PPT
Number of hours Required					8		
Total Number of hours required					46		