

[illegible]

	<table><tr><th>CO No.</th><th>PO No.</th><th>Bloom's Domain / Level</th><th>Delivery Methods / Activities</th><th>Assessment Tools</th></tr><tr><td>CO1</td><td>PO5</td><td>Cognitive / Understanding</td><td>Lectures, Lab Task, Assignment.</td><td>Lab Performance</td></tr><tr><td>CO2</td><td>PO4</td><td>Cognitive / Applying / Guided Response</td><td>Lectures, Lab Task, Assignment.</td><td>Lab Performance, Lab Final</td></tr><tr><td>CO3</td><td>PO3</td><td>Psychomotor / Response</td><td>Lectures, Lab Task, Assignment.</td><td>Lab Performance, Lab Final</td></tr></table>	CO No.	PO No.	Bloom's Domain / Level	Delivery Methods / Activities	Assessment Tools	CO1	PO5	Cognitive / Understanding	Lectures, Lab Task, Assignment.	Lab Performance	CO2	PO4	Cognitive / Applying / Guided Response	Lectures, Lab Task, Assignment.	Lab Performance, Lab Final	CO3	PO3	Psychomotor / Response	Lectures, Lab Task, Assignment.	Lab Performance, Lab Final
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16	Teaching Strategy	Maximum topics will be covered from the textbook. For the rest of the topics, reference books will be followed. Some class notes will be uploaded on the web. White board will be used for most of the time. Multimedia projector and a PC will be used for the convenience of the students to understand codes practically. Students must participate in classroom discussions for case studies, problems solving and project developments.																			
17	Assessment and Marks Distribution:	<table><tr><td>Class Attendance</td><td>:</td><td>10%</td></tr><tr><td>Assignment</td><td>:</td><td>20%</td></tr><tr><td>Lab Performance</td><td>:</td><td>30%</td></tr><tr><td>Lab Final</td><td>:</td><td>40%</td></tr></table>				Class Attendance	:	10%	Assignment	:	20%	Lab Performance	:	30%	Lab Final	:	40%				
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18	Weekly Schedule																				
	Week	Lab	Topics	CO																	
	Week1	Lab1	<b>Course Introduction:</b> <ul style="list-style-type: none"><li>Class Overview</li><li>Course Objectives</li><li>Structure of the Labs</li><li>Information on the Lab Sessions</li><li>Policies and procedures</li><li>A brief overview of Computer Networking</li></ul>																		
	Week2	Lab2	<b>Networks Cabling (Theoretical and Practical):</b> <ul style="list-style-type: none"><li>To make students aware about various types of cables used in guided media like coaxial cable, optical fiber cable, twisted pair cables and its categories.</li><li>To understand the working difference between straight cable and cross over cable.</li><li>Making connections with Cat5</li></ul> <b>Lab Performance Evaluation.</b>	CO1																	
	Week3	Lab3	<b>Simple LAN Connection:</b> <ul style="list-style-type: none"><li>Setting up a Simple LAN Connection between 2 PCs.</li><li>Setting up LAN and Sharing Centre.</li><li>File Sharing</li></ul>																		
	Week4	Lab4	<ul style="list-style-type: none"><li>Introduction to Packet Tracer 5.3 &amp; Simple 5 PC's network.</li><li>Building a LAN with HUBs and Switches.</li><li>Network Simulations in CISCO Packet Tracer.</li></ul> <b>Lab Performance Evaluation</b>	CO1																	
	Week5	Lab5	<b>Computer Network Servers Configurations:</b> <ul style="list-style-type: none"><li>Configuring a HTTP Server.</li><li>Configuring a DSCP Server.</li></ul>	CO2																	

		<ul style="list-style-type: none"> <li>Configuring a DNS Server.</li> <li>Configuring a SMTP Server.</li> <li>Configuring a DNS Server.</li> <li>Configuring a FTP Server.</li> </ul> <b>Lab Performance Evaluation</b>	
Week6	Lab6	<b>Switch Configuration:</b> <ul style="list-style-type: none"> <li>Study of basic network command and Network configuration commands.</li> <li>Performing an Initial Switch Configuration.</li> <li>Configuring and Troubleshooting a Switched Network.</li> <li>Connecting a Switch.</li> </ul> <b>Lab Performance Evaluation</b>	<b>CO2</b>
Week7		<b>Mid-Term Week</b>	
Week8	Lab7	<b>Router Configuration:</b> <ul style="list-style-type: none"> <li>Performing an Initial Router Configuration.</li> <li>Configuring and Troubleshooting a Router Network.</li> <li>To configure the routers for performing IP routing and sub-netting like cidr, vlsn etc.</li> <li>Configuring RIP and OSPF.</li> </ul> <b>Lab Performance Evaluation</b>	<b>CO2</b>
Week9	Lab8	<b>Access Control List</b> <ul style="list-style-type: none"> <li>Study the basic of standard and extended ACL</li> <li>Configuring and using ACL in different networks.</li> </ul> <b>Lab Performance Evaluation</b>	<b>CO3</b>
Week10	Lab9	<b>VLAN-Virtual Local Area Network:</b> <ul style="list-style-type: none"> <li>Study of the Basic Switch and Router Configuration Commands.</li> <li>Introduction to VLANs, Trunks, and VTP.</li> <li>Configuring VLANs and VTP.</li> </ul> <b>Lab Performance Evaluation</b>	<b>CO3</b>
Week11	Lab10	<b>VLAN-Virtual Local Area Network:</b> <ul style="list-style-type: none"> <li>Configuring VLANs and VTP by using more than Two Switches.</li> <li>Introduction to STP.</li> </ul> <b>Lab Performance Evaluation</b>	<b>CO3</b>
Week12	Lab11	<b>Wireless Router Configuration:</b> <ul style="list-style-type: none"> <li>Configuring a Wireless Router.</li> <li>Configuring WEP, WPA, and WPA2 on a Wireless Router.</li> <li>Wireless connection using packet tracer.</li> <li>Configuring a Wireless AP- Access Point.</li> </ul> <b>Lab Performance Evaluation</b>	<b>CO2</b>
Week13	Lab12	<b>CISCO Dude Edition Router Configuration:</b> <ul style="list-style-type: none"> <li>Mikrotik RB1100AHx4 Dude Edition Router Configuration.</li> <li>Router Security Configuration and Analysis.</li> </ul> <b>Lab Performance Evaluation</b>	<b>CO2</b>
Week14	Lab13	<b>Lab Final</b>	
Week 15		<b>Final Term Week</b>	

19	Overall CO Assessment Criteria	Assessment methods of COs are given below:							
		Assessment Area		Course Outcomes CO				Assessment Area Mark	
			CO1	CO2	CO3				
		Attendance							
		Lab Assignment							
		Lab Performance	5	15	10	30			
		Lab Final		20	20	40			
Total Mark		5	35	30	70				
20	Lab Performance Assessment Details	Lab #	Criteria	COs	Excellent(5)	Good(4)	Satisfactory(3)	Unsatisfactory (0-2)	Marks (30)
					Student demonstrates an accurate understanding of the lab objectives and concepts. The student can correctly answer questions and if appropriate, can explain concepts to the course teacher.	Student arrives on time to lab, but may be unprepared. Answers to questions are basic and superficial suggesting that concepts are not fully grasped.	Student tardiness or Unpreparedness makes it impossible to fully participate. If able to participate, student has difficulty explaining key lab concepts.	Student was absent from lab or did not participate. There was no attempt to make prior arrangements to make up the lab.	
		L2	Networks Cabling	CO1	”	”	”	”	3
		L4	Building a LAN with HUBs and Switches, Network Simulations in CISCO Packet Tracer.	CO1	”	”	”	”	3
		L5	Configuring a HTTP, DHCP, SMTP, DNS and FTP Server	CO2	”	”	”	”	3
		L6	Switch Configuration	CO2	”	”	”	”	3
		L7	Router, RIP, and OSPF Configuration	CO2	”	”	”	”	3
		L8	Study the basic of standard and extended	CO3	”	”	”	”	3

			ACL and Configuring and using ACL in different networks.						
		L9	VLAN-Virtual Local Area Network	CO3	”	”	”	”	3
		L10	Configuring VLANs and VTP by using more than Two Switches.	CO3	”	”	”	”	3
		L11	Wireless Router and Access Point Configuration	CO2	”	”	”	”	3
		L12	CISCO Dude Edition Router Configuration and Router Security Configuration and Analysis.	CO2	”	”	”	”	3
21	Lab Final Assessment Details	Criteria	Excellent(5)	Good(4)	Satisfactory(3)	Unsatisfactory (0-2)	Marks (40)		
		Computer Network Servers Configurations, Switch and Router Configuration, Static and Dynamic routing implementation	If the whole problem is successfully implemented	If the half of the problem is successfully implemented	If a small part of the problem is successfully implemented	Students were either absent or know nothing how to implement the problem	15		
		Access Control List, VLAN, VTP	If the whole problem is successfully implemented	If the half of the problem is successfully implemented	If a small part of the problem is successfully implemented	Students were either absent or know nothing how to implement the problem	15		
		Course Viva	The student can correctly answer questions and if appropriate, can explain concepts to the course teacher.	The student can moderately answer questions and if not fully appropriate, can explain concepts to the course teacher.	The student can answer a small portion of the questions	Students were either absent or cannot correctly answer questions	10		



	<b>Cognitive [C] (Knowledge-based)</b>		<b>Affective [A] (Emotion-based)</b>	<b>Psychomotor [P] (Action-based)</b>
	1. Remembering		1. Receiving	1. Perception
	2. Understanding		2. Responding	2. Set
	3. Applying		3. Valuing	3. Guided Response
	4. Analyzing		4. Organizing	4. Mechanism
	5. Evaluating		5. Characterizing	5. Complex Overt Response
	6. Creating			6. Adaptation
				7. Origination
26	<b>Descriptions of Cognitive Domain (Anderson and Krathwohl's Taxonomy 2001):</b>			
	The <b>cognitive domain</b> involves the development of our mental skills and the acquisition of knowledge.			
	<b>Level</b>	<b>Category</b>	<b>Meaning</b>	<b>Keywords</b>
	C1	Remembering	Recognizing or recalling knowledge from memory. Remembering is when memory is used to produce or retrieve definitions, facts, or lists, or to recite previously learned information.	Define, describe, draw, find, identify, label, list, match, name, quote, recall, recite, tell, write
	C2	Understanding	Constructing meaning from different types of functions be they written or graphic messages or activities like interpreting, exemplifying, classifying, summarizing, inferring, comparing, or explaining.	Classify, compare, exemplify, conclude, demonstrate, discuss, explain, identify, illustrate, interpret, paraphrase, predict, report
	C3	Applying	Carrying out or using a procedure through executing, or implementing. Applying relates to or refers to situations where learned material is used through products like models, presentations, interviews or simulations.	Apply, change, choose, compute, dramatize, implement, interview, prepare, produce, role play, select, show, transfer, use
	C4	Analyzing	Breaking materials or concepts into parts, determining how the parts relate to one another or how they interrelate, or how the parts relate to an overall structure or purpose. Mental actions included in this function are differentiating, organizing, and attributing, as well as being able to distinguish between the components or parts. When one is analyzing, he/she can illustrate this mental function by creating spreadsheets, surveys, charts, or diagrams, or graphic representations.	Analyze, characterize, classify, compare, contrast, debate, deconstruct, deduce, differentiate, discriminate, distinguish, examine, organize, outline, relate, research, separate, structure
	C5	Evaluating	Making judgments based on criteria and standards through checking and critiquing. Critiques, recommendations, and reports are some of the products that can be created to demonstrate the processes of evaluation.	Appraise, argue, assess, choose, conclude, critique, decide, evaluate, judge, justify, predict, prioritize, prove, rank, rate, select, Monitor
	C6	Creating	Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. Creating requires users to put parts together in a new way, or synthesize parts into something new and different creating a new form or product. This process is the most difficult mental function.	Construct, design, develop, generate, hypothesize, invent, plan, produce, compose, create, make, perform, plan, produce
27	<b>Descriptions of Affective Domain (Krathwohl, Bloom, Masia, 1973)</b>			
	The <b>affective domain</b> includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes.			
	<b>Level</b>	<b>Category</b>	<b>Meaning</b>	<b>Keywords</b>
	A1	Receiving	Awareness, willingness to hear, selected attention.	acknowledge, asks, attentive, courteous, dutiful, follows, gives, listens, understands



	A2	Responding	Active participation on the part of the learners. Attend and react to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation).	answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, presents, tells
	A3	Valuing	The worth or value a person attaches to a particular object, phenomenon, or behavior. This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are expressed in the learner's overt behavior and are often identifiable.	appreciates, cherish, treasure, demonstrates, initiates, invites, joins, justifies, proposes, respect, shares
	A4	Organizing	Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating an unique value system. The emphasis is on comparing, relating, and synthesizing values.	compares, relates, synthesizes
	A5	Characterizing	Has a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most important characteristic of the learner. Instructional objectives are concerned with the student's general patterns of adjustment (personal, social, emotional).	acts, discriminates, displays, influences, modifies, performs, qualifies, questions, revises, serves, solves, verifies

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### Descriptions of Psychomotor Domain (Simpson, 1972)

The psychomotor domain includes physical movement, coordination, and use of the motor-skill areas.

Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution.

Level	Category	Meaning	Keywords
P1	Perception	The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.	chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects.
P2	Set	Readiness to act. It includes mental, physical, and emotional sets. These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets).	begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers.
P3	Guided Response	The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.	copies, traces, follows, react, reproduce, responds
P4	Mechanism	This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.	assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.
P5	Complex overt Response	The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance.	assembles, builds, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.
P6	Adaptation	Skills are well developed and the individual can modify movement patterns to fit special requirements.	adapts, alters, changes, rearranges, reorganizes, revises, varies.
P7	Origination	Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills.	arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates.

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### Graduate Attributes (Program Outcomes) for B.Sc. in Engineering Program based on Washington Accord



	<p>Program Outcomes (POs) are narrower statements that describe what students are expected to know and be able to do by the Time of graduation. These relate to the knowledge skills and attitudes that students acquire while progressing through the program. The students of the B.Sc. in CSE program are expected to achieve the following graduate attributes or program outcomes at the time of graduation.</p> <p><b>PO1–Engineering knowledge (Cognitive):</b> Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.</p> <p><b>PO2–Problem analysis (Cognitive):</b> Identify, formulate, research the literature and analyze complex engineering problems and reach substantiated conclusions using first principles of mathematics, the natural sciences and the engineering sciences.</p> <p><b>PO3–Design/development of solutions (Cognitive, Affective):</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety as well as cultural, societal and environmental concerns.</p> <p><b>PO4–Investigation (Cognitive, Psychomotor):</b> Conduct investigations of complex problems, considering design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.</p> <p><b>PO5–Modern tool usage (Psychomotor, Cognitive):</b> 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.</p> <p><b>PO6–The engineer and society (Affective):</b> Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.</p> <p><b>PO7–Environment and sustainability (Affective, Cognitive):</b> Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.</p> <p><b>PO8–Ethics (Affective):</b> Apply ethical principles and commit to professional ethics, responsibilities and the norms of the engineering practice.</p> <p><b>PO9–Individual work and teamwork (Psychomotor, Affective):</b> Function effectively as an individual and as a member or leader of diverse teams as well as in multidisciplinary settings.</p> <p><b>PO10–Communication (Psychomotor, Affective):</b> Communicate effectively about complex engineering activities with the engineering community and with society at large. Be able to comprehend and write effective reports, design documentation, make effective presentations and give and receive clear instructions.</p> <p><b>PO11–Project management and finance (Cognitive, Psychomotor):</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work as a member or a leader of a team to manage projects in multidisciplinary environments.</p> <p><b>PO12–Life-long learning (Affective, Psychomotor):</b> Recognize the need for and have the preparation and ability to engage in independent, life-long learning in the broadest context of technological change.</p>		
<b>30</b>	<b>Social &amp; Moral Capital</b>		
	<p>Our promises are based on the three cardinal principles:            (a) What we do believe (b) What we do practice, and (c) What we will promote</p> <p>However, students are advised to undertake the following commitments for moral development.</p>		
	<ol style="list-style-type: none"> <li>1. To be punctual and attentive in class</li> <li>2. To maintain inclusive learning environment</li> <li>3. To ensure mutual respect</li> <li>4. To be cooperative in group learning.</li> <li>5. To be innovative and Creative</li> <li>6. To follow dress code and wearing ID card</li> <li>7. To be always proactive</li> </ol>	<ol style="list-style-type: none"> <li>8. Try to follow and review day to day class</li> <li>9. To avoid conspiracy</li> <li>10. To prioritize honesty &amp; faith</li> <li>11. To be motivated for asking question and encourage feedback</li> <li>12. To develop attitude for speaking in English</li> <li>13. Do not ignore to carry out any assignments or commitments</li> <li>14. To be clean and decent in all levels.</li> </ol>	<ol style="list-style-type: none"> <li>15. To be sincere for class preparation</li> <li>16. Do not forget to switch-off the cell phone in class</li> <li>17. Do not forget to carry course pack and learning stuffs in class</li> <li>18. To maintain loyalty and trust to the university</li> <li>19. Must avoid unfair means and plagiarism in exam, reports and assignments</li> <li>20. Must maintain eco-friendly environment in the campus.</li> </ol>

**Prepared by:**

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