

# Madhav Institute of Technology and Science, Gwalior

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

## Department of Computer Science & Engineering

### B. Tech. Computer Science & Engineering CO Attainment, Gap Analysis and Action Taken (Session: July-Dec. 2020 Semester)

	Course Name	Course outcomes	CO Direct Attainment %	CO Indirect Attainment %	Total Attainment %	Target	Gap	Action Taken	
<b>Semester3</b>	<b>150301: Digital Electronics</b>	CO1	Explain the computer architecture for defining basic component and functional unit.	65.33	75	<b>67.264</b>	65	-	No action needed
		CO2	Recall different number system and solve the basic arithmetic operations.	73.33	84.7	<b>75.604</b>	65	-	
		CO3	Develop the understanding of combinational circuits.	76	77.7	<b>76.34</b>	65	-	
		CO4	Analyze the basic concepts of sequential circuits.	72	79.16	<b>73.432</b>	65	-	
		CO5	Compare various memories.	66.67	75	<b>68.336</b>	65	-	
		CO6	Solve the Boolean functions using logic gates.	66.67	84.7	<b>70.276</b>	65	-	
	<b>150302: Data Structures</b>	CO1	Outline the basics of algorithms and their performance criteria.	64	76.81	<b>66.56</b>	65	-	Detailed analysis of conducted Quizzes and assignments.
		CO2	Explain the working of linear and non-linear data structures.	64	69.57	<b>65.11</b>	65	-	
		CO3	Identify the appropriate data structure to solve the specific problems.	66.67	65.22	<b>66.38</b>	65	-	
		CO4	Analyse the performance of various data structures and their applications.	65.33	68.12	<b>65.89</b>	65	-	
		CO5	Evaluate the time and space complexities of various data structures and their applications.	64	62.32	<b>63.66</b>	65	1.336	
		CO6	Design the optimal algorithmic solutions for various problems	66.67	62.32	<b>65.80</b>	65	-	
	<b>150304: OOPs and methodology</b>	CO1	Tell the concepts of classes & objects and their significance in real world.	92.8	77.78	<b>89.796</b>	70	-	No action needed
		CO2	Explain the benefits of object oriented design.	92.8	76.39	<b>89.518</b>	70	-	
		CO3	Build C++ classes using appropriate encapsulation and design principles.	88.8	75	<b>86.04</b>	70	-	
		CO4	Analyze the utilization of inheritance and polymorphism in the solution of problems.	86.4	76.39	<b>84.398</b>	70	-	
		CO5	Choose appropriate object orient programming concepts for solving real world problems.	93.6	76.39	<b>90.158</b>	70	-	
		CO6	Develop solutions to problems demonstrating usage of control structures, modularity, I/O and other standard language constructs.	84.8	77.78	<b>83.396</b>	70	-	

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<b>150303: Computer Graphics and Multimedia</b>	CO1	Illustrate the fundamental concepts of Computer Graphics, hardware & software components and its applications.	18.4	72	<b>29.12</b>	60	30.88	Conducted Remedial classes and tutorial classes and Extra practice sessions
	CO2	Explain various graphical image generation & manipulation methods and algorithms.	17.6	68	<b>27.68</b>	60	32.32	
	CO3	Apply various methods of generation & manipulation of images for creating graphical images and color models.	22.4	69	<b>31.72</b>	60	28.28	
	CO4	Explain various rendering, illumination and color models of realistic image or pictures using image processing techniques.	66.4	71	<b>67.32</b>	60	-	
	CO5	Discuss various methods to create natural seen & realistic images in 2D & 3D space.	22.4	62	<b>30.32</b>	60	29.68	
	CO6	Design & analysis of various graphical image processing techniques and animation.	30.4	61	<b>36.52</b>	60	23.48	
<b>150305: Hardware LAB</b>	CO1	Explain basics of different computer peripherals and interfaces.	52	64	<b>54.4</b>	55	0.6	No action needed
	CO2	Demonstrate architecture of various computer hardware devices and their functioning.	92	75	<b>88.6</b>	60	-	
	CO3	Demonstrate the details of system buses, memory system, and I/O interfaces.	100	71	<b>94.2</b>	60	-	
	CO4	Identify the existing configuration of the computers peripherals and creating wireless network through the access point.	92	81	<b>89.8</b>	60	-	
	CO5	Analyze progress in contemporary peripherals and bus systems.	100	85	<b>97</b>	60	-	
	CO6	construct a networking based on IPv4 address scheme.	68	61	<b>66.6</b>	60	-	
<b>150503: Theory of Computation</b>	CO1	explain the basic concepts of switching and finite automata theory & languages.	95.2	83.3	<b>92.82</b>	60	-	No action needed
	CO2	Relate practical problems to languages, automata, computability, and complexity.	85.6	85.4	<b>85.56</b>	65	-	
	CO3	Construct abstract models of computing and analyse their power to recognize the languages.	68.8	87.5	<b>72.54</b>	60	-	
	CO4	analyse the grammar, its types, simplification and normal form.	89.6	82.2	<b>88.12</b>	60	-	
	CO5	interpret rigorously formal mathematical methods to prove properties of languages, grammars and automata.	67.2	80.2	<b>69.8</b>	60	-	

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<b>Semester5</b>		<b>CO6</b> develop an overview of how automata theory, languages and computation are applicable in engineering application.	76.8	77	<b>76.84</b>	75	-	
	<b>150502: Software Engineering</b>	<b>CO1</b> explain the various fundamental concepts of software engineering.	92.8	88	<b>92.8</b>	75	-	No action needed
		<b>CO2</b> develop the concepts related to software design & analysis.	97.6	81	<b>97.6</b>	80	-	
		<b>CO3</b> compare the techniques for software project management & estimation.	99.2	72	<b>99.2</b>	85	-	
		<b>CO4</b> choose the appropriate model for real life software project.	93.6	84	<b>93.6</b>	80	-	
		<b>CO5</b> design the software using modern tools and technologies.	94.4	76	<b>94.4</b>	80	-	
		<b>CO6</b> test the software through different approaches.	93.6	91	<b>93.6</b>	75	-	
	<b>150504: Microprocessor &amp; Interfacing</b>	<b>CO1</b> Classify the concepts of different advanced microprocessors and microcontroller.	84	66.00	<b>80.4</b>	65	-	No action needed
		<b>CO2</b> Illustrate the various peripheral interfaces, controllers and bus standards.	72	81.00	<b>73.8</b>	65	-	
		<b>CO3</b> Build a system using peripheral devices and controllers for 8086 microprocessor.	71	82.00	<b>73.2</b>	65	-	
		<b>CO4</b> Distinguish the interface with various devices to the microprocessor.	68	69.00	<b>68.2</b>	65	-	
		<b>CO5</b> Design an interface for various devices on 8086/8051 based systems.	78	72.00	<b>76.8</b>	65	-	
		<b>CO6</b> Develops skills in assembly language programming for 8051 & 8086 applications.	69	75.00	<b>70.2</b>	65	-	
	<b>crete Structures</b>	<b>CO1</b> understand the basic concepts of set theory, propositional logic, graph theory, discrete numeric function and algebraic structure.	56	76.81	<b>60.16</b>	55	-	No action needed
		<b>CO2</b> Illustrate the knowledge of course content and distinguish between them in terms of their applications.	68	71.01	<b>68.60</b>	65	-	
		<b>CO3</b> Implement the course content to solve the problems.	65	73.91	<b>66.78</b>	60	-	
<b>CO4</b> Apply the concept of studied topics with suitable technique faced in engineering problems.		58.4	71.01	<b>60.92</b>	60	-		

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150501: Di	CO5 Analyze the basic concepts of set theory, propositional logic, graph theory, discrete numeric function and algebraic structure to examine the real world problems	80	76.81	79.36	65	-	
	CO6 Design the analytical skill and interpret applications of engineering beneficial in real time troubleshooting.	61.6	68.12	62.90	60	-	
150505: Minor project	CO1 Able to formulate a real problem	92	81	89.8	70	-	No action needed
	CO2 Express the technical ideas, strategies and methodologies	76	68	74.4	70	-	
	CO3 Utilize the new tools, algorithms, techniques to obtain solution of the project	64	75	66.2	65	-	
	CO4 Test and validate the develop the prototype/results	76	71	75	70	-	
	CO5 Write a project report	68	69	68.2	65	-	
	CO6 Present the oral demonstration	92	73	88.2	70	-	
150711: Networking with TCP/IP	CO1 define the concept of computer network and various layered architecture.	75	87	77.4	65	-	No action needed
	CO2 compare the classless and class full addressing of IPV4 .	81	85	81.8	65	-	
	CO3 identify the different types of networking devices and their functions within a network.	71	74	71.6	65	-	
	CO4 analyze various protocols of computer networks for assisting network design and implementation.	76	81	77	65	-	
	CO5 design client server applications and communication model and protocols for communication.	69	89	73	65	-	
	CO6 elaborate various TCP/IP protocol for achieving multimedia and security services.	71	80	72.8	65	-	
Distributed Systems	CO1 tell the basic elements and concepts related to distributed system technologies	75.2	81	76.36	60	-	No action needed
	CO2 demonstrate knowledge of the core architectural aspects of distributed systems.	85.6	84	85.28	65	-	
	CO3 identify how the resources in a distributed system are managed by algorithm.	76	79	76.6	60	-	
	CO4 examine the concept of distributed file system and distributed shared memory.	88	82	86.8	60	-	

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<b>Semester7</b>	<b>150713:</b>	<b>CO5</b>	compare various distributed system algorithms for solving real world problems.	85.6	76	<b>83.68</b>	60	-	
		<b>CO6</b>	develop application for achieving various services of distributed system	85.6	72	<b>82.88</b>	75	-	
	<b>150712: Data Mining and Warehousing</b>	<b>CO1</b>	Illustrate various tools of Data Mining and their techniques to solve the real time problems	61.6	85	<b>66.28</b>	60	-	No action needed
		<b>CO2</b>	Apply data preprocessing and data quality for construction of data warehouse	60	85	<b>65</b>	60	-	
		<b>CO3</b>	Identify various data bases and modeling of data warehouse and comparing various methods for storing & retrieving data from different data sources/repository.	64.8	85	<b>68.84</b>	60	-	
		<b>CO4</b>	Develop various classification algorithms for data using data mining.	60	82	<b>64.4</b>	60	-	
		<b>CO5</b>	Make use of data mining methods for identification of association for transactional databases.	60.8	87	<b>66.04</b>	60	-	
		<b>CO6</b>	Analyse data mining for knowledge discovery & prediction	60	90	<b>66</b>	60	-	
	<b>Internet of Things LAB</b>	<b>CO1</b>	understand the key components that make up an IoT system	68	75	<b>69.4</b>	65	-	No action needed
		<b>CO2</b>	explain the definition and usage of the term “Internet of Things” in different contexts	72	71	<b>71.8</b>	65	-	
		<b>CO3</b>	differentiate between the levels of the IoT stack and be familiar with the key technologies and protocols employed at each layer of the stack	80	84	<b>80.8</b>	65	-	
		<b>CO4</b>	apply the knowledge and skills acquired during the course to build and test a complete, working IoT system involving prototyping, programming and data analysis	80	68	<b>77.6</b>	65	-	
		<b>CO5</b>	understand where the IoT concept fits within the broader ICT industry and possible future trends	80	71	<b>78.2</b>	65	-	

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	<b>CO6</b> appreciate the role of big data, cloud computing and data analytics in a typical IoT system	68	65	<b>67.4</b>	65	-	
<b>100008: Intellectual Property Rights</b>	<b>CO1</b> Imbibe the knowledge of Intellectual Property and its protection through various laws	66.67	75	<b>68.336</b>	65	-	Given extra assignments to students. Also conducted extra classes
	<b>CO2</b> apply the knowledge of IPR for professional development	61.33	68	<b>62.664</b>	65	2.336	
	<b>CO3</b> Identify the appropriate data structures to solve specific problems	64	62	<b>63.6</b>	65	1.4	
	<b>CO4</b> develop a platform for protection and compliance of Intellectual Property Rights & knowledge	64	71	<b>65.4</b>	65	-	
	<b>CO5</b> create awareness amidst academia and industry of IPR and Copyright compliance	60	65	<b>61</b>	65	4	
	<b>CO6</b> deliver the purpose and function of IPR and patenting	60	62	<b>60.4</b>	65	4.6	