

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING  
FACULTY OF TECHNOLOGY & ENGINEERING  
THE M. S. UNIVERSITY OF BARODA**

**Proposed Scheme of Teaching & Examination of BE (Computer Science and Engineering) – w.e.f. AY 2026-27 (progressively)  
Four Years Degree Course**

**FS BE-I**

Sr. No	Subject Code	Subject	Course Type	Specialisation Group	Course Group	Teaching (Hours/Week)				Examination			Credits			BOS/FB
						L	T	P	Total	Theory Marks	Practical Marks	Total Marks	Theory Credit	Practical Credit	Total Credit	
1		Applied Mathematics-I	BSC	-	-	3	1	0	4	100	-	100	4	0	4	AMT
2		Digital Logic and Design	ESC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
3		Programming for Problem Solving	ESC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
4		Design Thinking	HSMC	-	-	0	0	2	2	-	50	50	0	1	1	CSE
5		English	HSMC	-	-	2	0	2	4	50	50	100	2	1	3	ENG
6		ICT Workshop-I	ESC	-	-	0	0	2	2	-	50	50	0	1	1	CSE
7		Universal Human Values - I	MC	-	-	2	0	0	2	50	-	50	0	0	0	FTE
<b>Total</b>						<b>13</b>	<b>1</b>	<b>10</b>	<b>24</b>	<b>400</b>	<b>250</b>	<b>650</b>	<b>12</b>	<b>5</b>	<b>17</b>	

**SS BE-I**

Sr. No	Subject Code	Proposed Subject	Course Category	Specialisation Group	Course Group	Teaching (Hours/Week)				Examination			Credits			BOS/FB
						L	T	P	Total	Theory Marks	Practical Marks	Total Marks	Theory Credit	Practical Credit	Total Credit	
1		Applied Mathematics-II	BSC	-	-	3	1	0	4	100	-	100	4	0	4	AMT
2		Applied Physics	BSC	-	-	3	1	2	6	100	50	150	4	1	5	APH
3		Object Oriented Programming with C++	PCC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
4		Engineering Graphics & Design for ICT	ESC	-	-	3	0	2	5	100	50	150	3	1	4	MEC
5		Basic Electrical & Electronics for ICT	ESC	-	-	3	0	2	5	100	50	150	3	1	4	ELE
6		ICT Workshop-II	ESC	-	-	0	0	2	2	-	50	50	0	1	1	CSE
		Environmental Sciences	ESC	-	-	2	0	0	2	50	-	50	2	0	2	CVL
7		Health and Wellness Awareness	MC	-	-	0	0	2	2	-	-	-	0	0	0	FTE
<b>Total</b>						<b>17</b>	<b>2</b>	<b>12</b>	<b>31</b>	<b>550</b>	<b>250</b>	<b>800</b>	<b>19</b>	<b>5</b>	<b>24</b>	

**FS BE-II**

Sr. No	Subject Code	Proposed Subject	Course Category	Specialisation Group	Course Group	Teaching (Hours/Week)				Examination			Credits			BOS/FB
						L	T	P	Total	Theory Marks	Practical Marks	Total Marks	Theory Credit	Practical Credit	Total Credit	
1		Applied Mathematics-III	BSC	-	-	3	1	0	4	100	-	100	4	0	4	AMT
2		Web Technologies	PCC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
3		Data Structures	PCC	-	-	3	1	2	6	100	50	150	4	1	5	CSE
4		Database Systems	PCC	-	-	3	1	2	6	100	50	150	4	1	5	CSE
5		Analog & Digital Communication	ESC	-	-	3	0	2	5	100	50	150	3	1	4	ELE
6		ICT Workshop-III	ESC	-	-	0	0	2	2	-	50	50	0	1	1	CSE
7		Indian Knowledge System	MC	-	-	1	0	0	1	-	-	-	0	0	0	FTE
<b>Total</b>						16	3	10	29	500	250	750	18	5	23	

**SS BE-II**

Sr. No	Subject Code	Proposed Subject	Course Category	Specialisation Group	Course Group	Teaching (Hours/Week)				Examination			Credits			BOS/FB
						L	T	P	Total	Theory Marks	Practical Marks	Total Marks	Theory Credit	Practical Credit	Total Credit	
1		Applied Mathematics-IV	BSC	-	-	3	1	0	4	100	-	100	4	0	4	AMT
2		Operating Systems	PCC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
3		Computer Networks	PCC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
4		Java Programming	PEC	-	Programming Elective-I*	3	0	2	5	100	50	150	3	1	4	CSE
5		C#.NET Programming	PEC	-	Programming Elective-I*	3	0	2	5	100	50	150	3	1	4	CSE
6		Design & Analysis of Algorithms	PCC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
7		Professional Communication and Soft Skills	HSMC	-	-	1	0	2	3	50	50	100	1	1	2	ENG
8		Universal Human Values - II	HSMC	-	-	2	1	0	3	100	-	100	3	0	3	FTE
<b>Total</b>						18	2	10	30	600	300	900	20	5	25	

**\*Any One subject to be selected from the Course Group**

**FS BE-III**

Sr. No	Subject Code	Proposed Subject	Course Category	Specialisation Group	Course Group	Teaching (Hours/Week)				Examination			Credits			BOS/FB
						L	T	P	Total	Theory Marks	Practical Marks	Total Marks	Theory Credit	Practical Credit	Total Credit	
1		Artificial Intelligence	PCC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
2		Introductory Cyber Security	PCC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
3		Computer Organization and Architecture	PCC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
4		Cloud Computing and Storage Systems	PCC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
5		Advanced JAVA Technologies	PEC	-	Programming Elective-II*	3	0	2	5	100	50	150	3	1	4	CSE
6		Advanced .NET Technologies	PEC	-	Programming Elective-II*	3	0	2	5	100	50	150	3	1	4	CSE
7		Micro-processor and Embedded System	PEC	-	Programming Elective-II*	3	0	2	5	100	50	150	3	1	4	CSE
8		Mobile Application Development	PEC	-	Programming Elective-II*	3	0	2	5	100	50	150	3	1	4	CSE
9		ICT Workshop-IV	ESC	-	-	0	0	2	2	-	50	50	0	1	1	CSE
10		Institute Elective - 1	OEC			3	0	0	3	100	0	100	3	0	3	FTE
<b>Total</b>						<b>18</b>	<b>0</b>	<b>12</b>	<b>30</b>	<b>600</b>	<b>300</b>	<b>900</b>	<b>18</b>	<b>6</b>	<b>24</b>	

**\*Any One subject to be selected from the Course Group**

**SS BE-III**

Sr. No	Subject Code	Proposed Subject	Course Category	Specialisation Group	Course Group	Teaching (Hours/Week)				Examination			Credits			BOS/FB
						L	T	P	Total	Theory Marks	Practical Marks	Total Marks	Theory Credit	Practical Credit	Total Credit	
1		Software Engineering	PCC	-	-	3	1	0	4	100	0	100	4	0	4	CSE
2		Theory of Computation	PCC	-	-	3	1	0	4	100	0	100	4	0	4	CSE
3		Machine Learning	PCC	-	-	3	0	2	5	100	50	150	3	1	4	CSE
4		Image Processing	PEC	-	Core Elective-I*	3	0	2	5	100	50	150	3	1	4	CSE
5		Augmented and Virtual Reality	PEC	-	Core Elective-I*	3	0	2	5	100	50	150	3	1	4	CSE
6		Introduction to Quantum Computing	PEC	-	Core Elective-I*	3	0	2	5	100	50	150	3	1	4	CSE
7		Human Computer Interaction	PEC	-	Core Elective-I*	3	0	2	5	100	50	150	3	1	4	CSE
8		Distributed Systems	PEC	-	Core Elective-I*	3	0	2	5	100	50	150	3	1	4	CSE
9		Blockchain Technology and Applications	PEC	-	Core Elective-I*	3	0	2	5	100	50	150	3	1	4	CSE

10		Data Science	PEC	Artificial Intelligence	Specialization Elective-I**	3	0	2	5	100	50	150	3	1	4	CSE
11		Information Security	PEC	Cyber Security	Specialization Elective-I**	3	0	2	5	100	50	150	3	1	4	CSE
12		Cloud Systems Design and Management	PEC	Cloud Computing	Specialization Elective-I**	3	0	2	5	100	50	150	3	1	4	CSE
13		Business Economics and Personnel Management	HSMC			3	1	0	4	100	0	100	4	0	4	FA-ECO
<b>Total</b>						<b>18</b>	<b>3</b>	<b>6</b>	<b>27</b>	<b>600</b>	<b>150</b>	<b>750</b>	<b>21</b>	<b>3</b>	<b>24</b>	
<b>*Any One subject to be selected from the Course Group</b>																
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<b>FS BE-IV</b>																
Sr. No	Subject Code	Proposed Subject	Course Category	Specialisation Group	Course Group	Teaching (Hours/Week)				Examination			Credits			BOS/FB
						L	T	P	Total	Theory Marks	Practical Marks	Total Marks	Theory Credit	Practical Credit	Total Credit	
1		Compiler Design	PCC	-	-	3	1	0	4	100	-	100	4	0	4	CSE
2		Natural Language Processing	PEC	Artificial Intelligence	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE
3		Programming with Generative AI	PEC	Artificial Intelligence	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE
4		Reinforcement Learning	PEC	Artificial Intelligence	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE
5		Computer Vision	PEC	Artificial Intelligence	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE
6		Introduction to LLM	PEC	Artificial Intelligence	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE
7		Secure Computation I	PEC	Cyber Security	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE
8		Ethical Hacking	PEC	Cyber Security	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE
9		Secure Systems Engineering	PEC	Cyber Security	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE
10		Google Cloud Foundation	PEC	Cloud Computing	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE
11		Foundations of Cloud IoT Edge ML	PEC	Cloud Computing	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE
12		Edge Computing	PEC	Cloud Computing	Specialization Elective-II*	3	0	0	3	100	-	100	3	0	3	CSE

13		IT Startup and Project Management	HSMC	-	-	0	0	2	2	0	50	50	0	1	1	CSE
14		Minor Project / Industrial Training	Project	-	-	0	0	20	20	0	300	300	0	10	10	CSE
<b>Total</b>						<b>6</b>	<b>1</b>	<b>22</b>	<b>29</b>	<b>200</b>	<b>350</b>	<b>550</b>	<b>7</b>	<b>11</b>	<b>18</b>	

**\*Any One subject to be selected from the Course Group**

**\*If the student has selected subjects in Specialization I and Specialization II belonging to the same Specialization Group, he/she shall be awarded a Micro-Specialization Degree of that Group**

**\*Student may opt an equivalent subject (from the provided list by the department) offered by NPTEL/SWAYAM credits of which may be transferred as per government guidelines**

<b>SS BE-IV</b>																
Sr. No	Subject Code	Proposed Subject	Course Category	Specialisation Group	Course Group	Teaching (Hours/Week)				Examination			Credits			BOS/FB
						L	T	P	Total	Theory Marks	Practical Marks	Total Marks	Theory Credit	Practical Credit	Total Credit	
1		Major Project / Industrial Training	Project	-		0	0	40	40	0	600	600	0	20	20	CSE
<b>Total</b>						<b>0</b>	<b>0</b>	<b>40</b>	<b>40</b>	<b>0</b>	<b>600</b>	<b>600</b>	<b>0</b>	<b>20</b>	<b>20</b>	

**Scheme Note:**

**A. Separate Head of Passing for Theory and Practical Components.**

**B. Minimum Passing Percentage in each Head of Passing is 40% of Maximum Marks defined by the Faculty Board (as of AY 2026-27)**

**C. If the student has selected subjects in Specialization I (SS BE-III) and Specialization II (FS BE-IV) belonging to the same Specialization Group, he/she shall be awarded a Micro-Specialization Degree of that Group.**

**The awarded degree shall mention the Specialization Group as per suitable nomenclature (to be decided)**

**D. In cases where point C is not applicable, the awarded degree shall not mention any kind of Specialization Group.**