Sant Gadge Baba Amravati University, Amravati

Scheme of Implementation for
Four Year Undergraduate Degree Programme in Engineering and Technology

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B.E. in ELECTRONICS AND COMPUTER ENGINEERING

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in the faculty of
Science and Technology

ACADEMIC EVALUATION SCHEME/CREDIT SYSTEM
Year: 2025-26

(Scheme of Teaching, Learning, and Examination & Evaluation w.e.f. 2025-2026 and onwards)

	Scheme for First Year Four Year Undergraduate Engineering Degree Programme												
	B.E. Electronics & Computer Engineering (Semester – I)												
S. N.	**Course Name**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total Marks**	**ESE (Time Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	Core Courses												
1	Applied Mathematics -I (BSC)	1AL100BS	3	0	0	3	3	40	60			100	3 Hrs.
2	Engineering Physics (BSC)	1AL101BS	3	0	0	3	3	40	60			100	3 Hrs.
3	Computer Programming (ESC)	1AL102ES	3	0	0	3	3	40	60			100	3 Hrs.
4	Engineering Mechanics (ESC)	1AL103ES	3	0	0	3	3	40	60			100	3 Hrs.
	Laboratory Courses												
5	Engineering Physics Lab (BSC)	1AL104BS	0	2	0	2	1			25	25	50	3 Hrs.
	Computer Programming Lab (ESC)	1AL105ES	0	2	0	2	1			25	25	50	3 Hrs.
6	Engineering Mechanics Lab (ESC)	1AL106ES	0	2	0	2	1			25	25	50	3 Hrs.
7	Workshop (ESC)	1AL107ES	0	2	0	2	1			25	25	50	3 Hrs.
	Vocational and Skill Enhancement Courses (VSEC)												
8	Introduction to Web Technology (VSEC-I)	1AL108VS	1	2	0	3	2			50	-	50	
	Ability Enhancement Courses(AEC)												
9	Professional Communication	1AL109AE	1	2	0	3	2			25	25	50	3 Hrs.
	Co-curricular Course (CC)												
10	Co-curricular Course (CC)	1AL110CC	0	4	0	4	2			50	-	50	
	TOTAL		14	16	0	30	**22**					**750**	

L: Lecture	**P: Practical**	**T: Tutorial**	**ESE: End Semester Exam**	**IE: Internal Evaluation**	**INT: Internal**	**EXT: External**

	Scheme for First Year Four Year Undergraduate Engineering Degree Programme B.E. Electronics & Computer Engineering(Semester – II)												
S. N.	**Course Name**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total Marks**	**ESE (Time Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	Core Courses												
1	Applied Mathematics -II (BSC)	2AL111BS	3	0	0	3	3	40	60			100	3 Hrs.
2	Engineering Chemistry (BSC)	2AL112BS	3	0	0	3	3	40	60			100	3 Hrs.
3	Basic Electrical Engineering (ESC)	2AL113ES	3	0	0	3	3	40	60			100	3 Hrs.
4	Engineering Graphics (ESC)	2AL114ES	2	0	0	2	2	40	60			100	3 Hrs.
	Laboratory Courses												
5	Engineering Chemistry Lab (BSC)	2AL115BS	0	2	0	2	1			25	25	50	3 Hrs.
6	Basic Electrical Engineering Lab (ESC)	2AL116ES	0	2	0	2	1			25	25	50	3 Hrs.
7	Engineering Graphics Lab (ESC)	2AL117ES	0	2	0	2	1			25	25	50	3 Hrs.
	Vocational and Skill Enhancement Courses (VSEC)												
8	Computer Hardware & Networking (VSEC-II)	2AL118VS	1	2	0	3	2			50	-	50	
	Programme Core Course (PCC)												
9	Introduction to Digital Electronics (PCC)	2AL119PC	2	0	0	2	2	20	30			50	2 Hrs.
	Indian Knowledge System (IKS)												
10	Indian Traditional Knowledge	2AL120IK	2	0	0	2	2	20	30			50	2 Hrs
	Co-curricular Course (CC)												
11	Co-curricular Course (CC)	2AL121CC	0	4	0	4	2			50	-	50	
	TOTAL		16	12	0	28	**22**					**750**	

L: Lecture	**P: Practical**	**T: Tutorial**	**ESE: End Semester Exam**	**IE: Internal Evaluation**	**INT: Internal**	**EXT: External**

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Scheme for Multiple Entry and Exit

Exit option -1 (Level 4.5): Award of UG Certificate in Major with 44 credits and an additional 8 credits				
Exit Courses				
1	3ET241EC	Electronics Servicing and Maintenance	Online Certification Course	4
2	3ET242EC	Assembly & Maintenance of Personal Computer	Online Certification Course	4
OR				
3	3ET404EL	Internship at Industry	Two Months (288 – 320 Hours)	8

Scheme for Second Year Four Year Undergraduate Engineering Degree Programme B.E. in ELECTRONICS AND COMPUTER ENGINEERING (Semester -III)													
S. N.	**Course Name**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total Marks**	**ESE (Time Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	Core Courses												
1	Electronics Devices & Circuits (PCC-I)	3EK200PC	3	0	0	3	3	40	60			100	3.00 Hrs.
2	Signals & Systems (PCC-II)	3EK201PC	3	0	0	3	3	40	60			100	3:00 Hrs.
3	Discrete Structure & Graph Theory (PCC-III)	3EK202PC	3	0	0	3	3	40	60			100	3:00 Hrs.
	Laboratory Courses												
4	Community Engagement Project/Field Project	3EK400EL	0	4	0	4	2			25	25	50	
5	Electronics Devices & Circuit Lab (PCC-I)	3EK203PL	0	2	0	2	1			25	25	50	
6	Signal & System Lab (PCC-II)	3EK204PL	0	2	0	2	1			25	25	50	
	Multidisciplinary Minor												
7	Multidisciplinary Minor -I	3EK205MD	2	0	0	2	2	20	30	-	-	50	2:00 Hrs.
Open Elective Other than a particular Program													
8	Open Elective -I	3EK206OE	3	0	0	3	3	40	60	-	-	100	3:00 Hrs.
	HSSM (Entrepreneurship/Economics Management Course)												
9	Entrepreneurship Development	3EK207EM	2	0	0	2	2	20	30	-	-	50	2:00 Hrs.
	(VEC) Value Education Course												
10	Environmental Science	3EK208VE	2	0	0	2	2	20	30			50	2:00 Hrs.
\	TOTAL		18	8	0	26	**22**					**700**	

L: Lecture P: **Practical** T: Tutorial **M SE :** Mid Semester Exam **ESE:** End Semester Exam **IE:** Internal Evaluation **INT:** Internal **EXT:** External

Note: Six hours per week are allotted for continuous evaluation process for the above courses. (Total contact hours per week = 34 Hours)

Open Elective-1: A) Basics of Computing for Engineers B) Basics of Artificial Intelligence

Multidisciplinary Minor -I: Foundation of Computing & Programming

	Scheme for Second Year Four Year Undergraduate Engineering Degree Programme B.E. in ELECTRONICS AND COMPUTER ENGINEERING (Semester -IV)												
Sr No.	**Course Name**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESE Time Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	Core Courses												
1	Analog Circuits (PCC-I)	4EK209PC	3	0	0	3	3	40	60			100	3.00 Hrs.
2	Object Oriented Programming (PCC-II)	4EK210PC	3	0	0	3	3	40	60			100	3.00 Hrs.
3	Digital Circuits (PCC-III)	4EK211PC	2	0	0	2	2	40	60			100	3.00 Hrs.
	Laboratory Courses												
4	Analog Circuits Lab (PCC-I)	4EK212PL	0	2	0	2	1			25	25	50	
5	Object Oriented Programming Lab (PCC-II)	4EK213PL	0	2	0	2	1			25	25	50	
	Multidisciplinary Minor												
6	Multidisciplinary Minor –II*	4EK214MD	2	0	0	2	2	20	30	-	-	50	2.00 Hrs.
	Vocational and Skill Enhancement Courses												
7	VSEC-III: Sensors and Actuators	4EK215VS	1	2	0	3	2			50	-	50	
	Open Elective other than a particular Program												
8	Open Elective- II	4EK216OE	2	0	0	2	2	20	30			50	2.00 Hrs.
	HSSMC (Entrepreneurship/ Economics/ Management Course)												
9	Engineering Economics	4EK217EM	2	0	0	2	2	20	30			50	2.00 Hrs.
	(Ability Enhancement Course (AEC)												
10	Modern Indian Language	4EK218AE	2	0	0	2	2			25	25	50	.
	Value Education Course (VEC)												
11	Environmental Science/UHV/VE	4EK219VE	2	0	0	2	2	20	30			50	2.00 Hrs.
	TOTAL		19	06	0	25	**22**					**700**	

L: Lecture P: Practical T: Tutorial MSE: Mid Semester Exam ESE: End Semester Exam IE: Internal Evaluation INT: Internal EXT: External

Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

Open Elective-II: A) Intellectual Property Rights B) Information Systems for Engineers

Multidisciplinary Minor II: Data Structures and Problem Solving

Scheme for Multiple Entry and Exit

Exit option -2 (Level 5.0): Award of UG Diploma in Major with 88 credits and an additional 8 credits				
Exit Courses				
1	5EK243EC	Microprocessors/Microcontrollers based Product Design	Online Certification Course	4
2	5EK244EC	PCB Design and Circuit Simulation	Online Certification Course	4
OR				
3	5EK405EL	Internship at Industry OR Minor Project	Two Months (288 – 320 Hours)	8

	Scheme for Third Year Undergraduate Engineering Degree Programme B.E. in Electronics & Computer Engineering (Semester – V)												
Sr No.	**Course Name**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESE Time Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	Core Courses												
1	Microcontroller(PCC-I)	5EK220PC	3	0	0	3	3	40	60			100	3.00Hrs.
2	Digital Signal Processing(PCC-II)	5EK221PC	3	0	0	3	3	40	60			100	3.00Hrs.
3	Database Management Systems (PCC-III)	5EK222PC	3	0	0	3	3	40	60			100	3.00Hrs.
4	Programme Elective Course-I: Data Science and Statistics/ Internet of Things/ Introduction to Cyber Security	5EK223PE	3	0	0	3	3	40	60			100	3.00Hrs.
	Laboratory Courses												
5	Microcontroller Lab(PCC-I)	5EK224PL	0	2	0	2	1			25	25	50	
6	Digital Signal Processing Lab(PCC-II)	5EK225PL	0	2	0	2	1			25	25	50	
7	Database Management Systems Lab (PCC-III)	5EK226PL	0	2	0	2	1			25	25	50	
	Multidisciplinary Minor												
8	Multidisciplinary Minor–III*	5EK227MD	2	0	0	2	2	20	30			50	2.00Hrs.
9	Multidisciplinary Minor–IV*	5EK228MD	2	0	0	2	2	20	30			50	2.00Hrs.
10	Multidisciplinary Minor Lab.–I*	5EK229ML	0	2	0	2	1			25	25	50	
	Open Elective other than a particular Program												
11	Open Elective-III	5EK230OE	2	0	0	2	2	20	30			50	2.00Hrs.
	TOTAL		18	08	0	26	**22**					**750**	

L: Lecture **P:** Practical **T:** Tutorial **ESE:** End Semester Exam **IE:** Internal Evaluation **INT:** Internal EXT: External

MDM –III: Introduction to Microprocessors **MDM-IV:** Database Management Systems **MDM Lab-I:** Microprocessor and Microcontroller Lab

Open Elective-III: A) Cyber Law & Ethics B) Introduction to Data Analytics

	Scheme for Third Year Undergraduate Engineering Degree Programme B.E. in Electronics & Computer Engineering (Semester – VI)												
Sr No.	**Course Name**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESETime Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	Core Courses												
1	Digital Image Processing(PCC-I)	6EK231PC	3	0	0	3	3	40	60			100	3.00Hrs.
2	Embedded Systems(PCC-II)	6EK232PC	3	0	0	3	3	40	60			100	3.00Hrs.
3	Cloud Computing (PCC- III)	6EK233PC	3	0	0	3	3	40	60			100	3.00Hrs.
4	Program Elective Course -II: Power Electronics/VLSI design	6EK234PE	3	0	0	3	3	40	60			100	3.00Hrs.
5	Program Elective Course -III: Computer Architecture / Introduction to Machine Learning	6EK235PE	3	0	0	3	3	40	60			100	3.00Hrs.
	Laboratory Courses												
6	Digital Image Processing Lab (PCC-I)	6EK236PL	0	2	0	2	1			25	25	50	
7	Embedded Systems Lab(PCC-II)	6EK237PL	0	2	0	2	1			25	25	50	
8	Cloud Computing Lab (PCC-III)	6EK238PL	0	2	0	2	1			25	25	50	
	Multidisciplinary Minor												
9	Multidisciplinary Minor–V*	6EK239MD	2	0	0	2	2	20	30			50	2.00Hrs.
	Vocational and Skill Enhancement Courses												
10	VSEC-IV(Technical Dept .Specific): Introduction to Python	6EK240VS	1	2	0	3	2			50	-	50	
	TOTAL		18	08	0	26	**22**					**750**	

L: Lecture **P:** Practical **T:** Tutorial **ESE:** End Semester Exam **IE:** Internal Evaluation **INT:** Internal **EXT:** External

MDM-V- IoT and Application

Scheme for Multiple Entry and Exit

Exit option -3 (Level 5.5): Award of UG Degree in Major with 132 credits and an additional 8 credits				
Exit Courses				
1	7EK310EC	Certified Database Engineer (Oracle, DB2)	Online Certification Course	4
2	7EK311EC	Certified Cloud Engineer (AWS, AZURE)	Online Certification Course	4
OR				
3	7EK406EL	Internship at Industry OR Minor Project	Two Months (288 - 320 Hours)	8

	Scheme for Final Year Four Year Undergraduate Engineering Degree Programme B.E. in ELECTRONICS AND COMPUTER ENGINEERING (Semester -VII)												
Sr No.	**Course Name**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESE Time Hrs)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	Core Courses												
1	VLSI (PCC-I)	7EK300PC	3	0	0	3	3	40	60			100	3.00 Hrs.
2	Distributed Computing (PCC-II)	7EK301PC	3	0	0	3	3	40	60			100	3.00 Hrs.
3	Program Elective Course -IV: MEMS/Cloud Computing/ Human Computer Interface	7EK302PE	3	0	0	3	3	40	60			100	3.00 Hrs.
4	Program Elective Course -V: Introduction to IOT/ Digital Forensics / Software Testing and Analysis	7EK303PE	3	0	0	3	3	40	60			100	3.00 Hrs.
5	Program Elective Course -VI: Biomedical Engineering/ Smart Sensors & Actuators/ Industrial Automation	7EK304PE	3	0	0	3	3	40	60			100	3.00 Hrs.
	Laboratory Courses												
6	VLSI Lab (PCC-I)	7EK305PL	0	2	0	2	1			25	25	50	
7	Distributed Computing Lab (PCC-II)	7EK306PL	0	2	0	2	1			25	25	50	
	Multidisciplinary Minor												
8	Multidisciplinary Minor –VI*	7EK307MD	2	0	0	2	2	20	30			50	2.00 Hrs.
9	Multidisciplinary Minor Lab. –II*	7EK308ML	0	2	0	2	1			25	25	50	.
	Project												
10	Project	7EK401PR	0	4	0	4	2			50	50	100	
	TOTAL		17	10	0	27	**22**					**800**	

L: Lecture **P: Practical** **T: Tutorial** **ESE: End Semester Exam** **IE: Internal Evaluation** **INT: Internal** **EXT: External**

Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

MDM VI: Introduction to Embedded Systems **MDM Lab-II:** Embedded Systems Lab

	Scheme for Final Year Four Year Undergraduate Engineering Degree Programme B.E. in ELECTRONICS AND COMPUTER ENGINEERING (Semester -VIII)												
Sr No.	**Course Name**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESE Time Hrs)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	Core Courses												
1	Research Methodology	8EK309RM	4*			4	4	40	60			100	3.00 Hrs.
2	Industry Internship	8EK402EL	0	24	0	24	12			100	200	300	--
3	Project	8EK403PR	0	4	0	4	2			50	50	100	--.
	TOTAL		4	28	0	32	18					**500**	

L: Lecture P: Practical T: Tutorial ESE: End Semester Exam IE: Internal Evaluation INT: Internal EXT: External

Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

***The course on Research Methodology may be completed by the student in Online mode (Swayam, MOOC's, any other platform approved by AICTE OR on the LMS platform offered by the Institute).**