DIRECTION

No. 21/2020   Date :- 24/10/2020

Subject :- Examination leading to the Degree of B.E./ B.Text.E. /B.Tech. (Chem.Engg.) (Four Year Degree Course.. Semester Pattern) (C.B.C.S.) in the Faculty of Science & Technology, Direction 2020.

Whereas, Direction No. 29 of 2010 in respect of the Examination leading to the Degree of B.E./ B.Text.E. /B.Tech. (Chem.Engg.) (Four Year Degree Course .. Semester Pattern) (C.B.C.S.) in the Faculty of Engineering & Technology, Direction, 2010 of B.E. /B.Text. E.(Common to all branches) as per Credit Grade System in the Faculty of Engineering & Technology was in existence up to the session 2018-19 and abrogated stage wise vide Direction No. 26 /2019,

AND

Whereas, Direction Nos. 31/2011, 31/2012, 3/2013, 16/2014, 12/2016, 19/2016, 20/2016, 11/2017 and 37/2018 in respect of the Schemes of teaching & examination of Semesters III to VIII in the various branches of B.E. /B.Text.E. /B.Tech. (Chem. Tech.) as per Credit Grade System in the Faculty of Engineering & Technology are in existence,

AND

Whereas, Direction No. 26 of 2019 in respect of the Examination leading to the Degree of B.E./ B.Text.E. /B.Tech.(Chem.Engg.), B.Tech.(Chem. Tech.) (Polymer) (Plastic) Tech. (Four Year Degree Course..Semester Pattern) (C.B.C.S.) in the Faculty of Science & Technology, Direction, 2020 is in existence,

AND

Whereas, the Hon'ble Vice-Chancellor had constituted a Committee of all the Chairpersons of the Board of Studies of Engineering & Technology under the Chairmanship of the Dean, Faculty of Science & Technology for preparing of the Schemes of teaching & examination of Under Graduated Courses of Semester III to VIII of B.E. /B.Text.E. / B.Tech. (Chem.Engg.) / B.Tech. (Chem.Tech.) as per the guidelines of A.I.C.T.E. Model Curriculum to be implemented from the session 2020-21 & onwards in phase wise manner,

AND

Whereas, the Committee in its series of meetings dtd. 6.6.2020, 22.6.2020 & 23.6.2020 has prepared, finalized and recommended the Schemes of teaching & examination of the branches Civil Engg., Mechanical Engg., Electronics & Telecommunication Engg., Computer Science & Engg. / Computer Engg., Electrical Engg., Electrical Engg. (Electronics & Power), Electrical & Electronics Engg., Information Technology, Textile Engg., Chemical Engg., (C.B.C.S.) of Semester III to VIII as per guidelines of AICTE Model Curriculum to the office to be implemented from the session 2020-21 & onwards in phase wise manner,

AND

Whereas, the Hon'ble Vice-Chancellor had accepted and accorded approval to the schemes of teaching & examination of Semester III to VIII of B.E. /B.Text.E. /B.Tech. (Chem.Engg.) on behalf of Faculty of Science & Technology and Academic Council on 24.7.2020 to be implemented from the session 2020-21 & onwards in phase wise manner,

AND

Whereas, the above Schemes of teaching & examinations of Semesters Semester III to VIII of B.E. /B.Text.E./B.Tech.(Chem.Engg.) in the Faculty of Science & Technology are required to be regulated by the Ordinance /Regulation,

AND

Whereas, making the Ordinance /Regulation is a time consuming process,

Now, therefore, I, Dr. M.G.Chandekar, Vice-Chancellor, Sant Gadge Baba Amravati University, in exercise of powers conferred upon me under sub-section (8) of Section 12 of the Maharashtra Public Universities Act, 2016, do hereby direct as under :-

(1) This Direction shall be called "Examination leading to the Degree of B.E./ B.Text.E. /B.Tech. (Chem.Engg.) (Four Year Degree Course..Semester Pattern) (C.B.C.S.) in the Faculty of Science & Technology, Direction, 2020".

(2) This Direction shall come into force from the date of its issuance.

(3) Subject to the conditions prescribed by the Government from time to time, for admission to First Year B.E./B.Text.E. / B.Tech. (Chem. Engg.) / B.Tech. (Chem. Tech.) Polymer (Plastic) Tech. courses the candidate shall be considered eligible :

Passing 12th Standard examination of the Maharashtra State Board of Secondary and Higher Secondary Education, with subjects :
1. English (Higher or Lower)
2. Modern Indian Language (Higher or Lower)
3. Mathematics and Statistics.

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4. Chemistry.

5. Physics.

6. Any other optional subject from out of the list prescribed by the said Secondary and Higher Secondary Education Board.

<div align="center">OR</div>

i) English (Higher or lower)

ii) Mathematics and Statistics.

iii) Chemistry

iv) Physics

v) Vocational subject (Defined by the said Board as a Technical Subject)

<div align="center">OR</div>

An Examination recognised by the Sant Gadge Baba Amravati University as an equivalent to the above.

(**4**)   Subject to the conditions prescribed by the Govt. from time to time for direct admission to the second Year B.E. / B.Text.E. / B.Tech. (Chem. Engg.) / B.Tech. (Chem. Tech.) Polymer (Plastic) Tech. the candidates shall be considered eligible :-

Passing Diploma in relevant branch in First Division, awarded by the Board of Technical Examination of Maharashtra State, Mumbai.

<div align="center">OR</div>

Any Diploma equivalent to the corresponding Diploma of the Board of Technical Examination of Maharashtra State, Mumbai.

(**5**)   (a) The Degree of Bachelor of Engineering shall be awarded to examinee who in accordance with the provisions of this Direction qualifies for the award in any of the following branches.

i.	Civil Engineering
ii.	Mechanical Engineering
iii.	Electrical Engineering (Electronics & Power)
iv.	Electrical Engineering
vi.	Electrical and Electronics Engineering.
vii.	Electronics and Telecommunication Engineering
viii.	Computer Science & Engineering
ix.	Information Technology
x.	Computer Engineering
xi.	Chemical Engineering
xii.	Textile Engineering

(b)   The Degree of Bachelor of Textile Engineering shall be awarded to examinee, who qualifies in accordance with the provisions of this Direction.

(c)   The Degree of Bachelor of Technology (Chemical Engineering) shall be awarded to examinee who qualifies in accordance with the provisions of this Direction.

(d)   The Degree of Bachelor of Technology (Chemical Technology) Polymer (Plastic) Tech. shall be awarded to examinee who qualifies in accordance with the provisions of this Direction.

(**6**) (i) There shall be eight semester examinations leading to the Degree of B.E./B.Text.E./B.Tech.   (Chem. Engg.) /B.Tech. (Chem. Tech.) Polymer (Plastic) Tech. (First, Second, Third, Fourth, Fifth, Sixth, Seventh & Eight Semester)

   (ii) The first & Second Semester Examinations shall be common for all the branches.

(iii) The procedure for bifurcation of the students in Group - A & Group - B shall be as given in **Appendix -B**.

(**7**) The period of Academic Session shall be such as may be notified by the University.

(**8**) The main examination of first, third, fifth and seventh semester shall be held by the University in winter & supplementary examination in summer every year. And main examination of second, fourth, sixth & eighth semester shall be held in summer & the supplementary examination in winter every year.

(**9**) The Internal Assessment marks for theory should be based on Class Test and Attendance as follows:-

(a) Class Test Marks will be based upon two Class Tests.	-	15
(b) Attendance	-	Mark/s
75% to 80%	-	1
81% to 85%	-	2
86% to 90%	-	3
91% to 95%	-	4
96% to 100%	-	5

Wherever, if internal assessment marks are 'ten (10)' then it should be converted out of "20".

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(**10**) Subject to his/her compliance with the provisions of this Direction & other Ordinances pertaining to Examination in force from time to time, the applicant for admission, at the end of the course of study of a particular semester/session, to an Examination specified in column (1) of the table I below, shall be eligible to appear if,

i) he/she satisfies with the conditions in the table and the provisions there under.
ii) he/she complies with the provisions of the ordinance pertaining to the Examination in general from time to time.
iii) he/she has prosecuted a regular course of study in a college affiliated to the University.

iv) he/she has in the opinion of the Principal shown satisfactory progress in his/her studies.

TABLE I

Name of Exam B.E./B.Text.E./ B.Tech. (Chem. Engg.)/B.Tech. (Chem.Tech.) Polymer (Plastic)Tech.	The student should have passed Exam. of	The Student should have satisfactorily completed the following semester	The student should have passed the following examination
1.	2.	3.	4.
First Semester Group A/Group B	XII standard Examination or equivalent	....	....
Second Semester Group A/Group B	....	I Semester Group A/Group B	....
Third Semester	....	II Semester Group A/Group B	2/3rd heads of I & II Sem. combined together
Fourth Semester	....	III Semester	....
Fifth Semester	I & II Sem.	IV Semester	2/3rd heads of III & IV Sem. combined together
Sixth Semester	....	V Semester	....
Seventh Semester	III & IV Sem. combined together	VI Semester	2/3rd heads of V & VI Sem.
Eighth Semester	....	VII Semester	....

(**11**) An examinee who has passed 2/3 rd heads of passing shall be allowed to keep term in the next higher class.
Explanation:
       (i) While calculating 2/3 rd heads of passing, fraction if any shall be ignored
       (ii) For considering the heads of passing, every theory and every practical shall be considered as separate head of passing.

(**12**) The schemes of teaching & examinations shall be as provided under "**Appendix-A**" appended with this Direction.

(**13**) The fees for each B.E./B.Text.E./B.Tech. (Chem. Engg.)/B.Tech. (Chem. Tech.) Polymer (Plastic) Tech. Examinations (Theory & Practical) shall be as prescribed by University from time to time.

(**14**) The computation of Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) of an examinee shall be done as given below :-

The marks will be given in all examinations which will include college assessment marks and the total marks for each Theory / Practical shall be converted into Grades as per **Table II**.

SGPA shall be calculated based on Grade Points corresponding to Grade as given in Table II and the Credits allotted to respective Theory / Practical shown in the scheme for respective semester.

SGPA shall be computed for every semester and CGPA shall be computed only in VIII semester. The CGPA of VIII semester shall be calculated based on SGPA of VII and SGPA of VIII semester as per following computation :-

$$SGPA = \frac{C_1 \times G_1 + C_2 \times G_2 + \dots + C_n G_n}{C_1 + C_2 + \dots + C_n}$$

Where, C_1 = Credit of individual Theory / Practical
       G_1 = Corresponding Grade Point obtained in the respective Tl

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$$CGPA = \frac{(SGPA)_{VII} \times (Cr)_{VII} + (SGPA)_{VIII} \times (Cr)_{VIII}}{(Cr)_{VII} + (Cr)_{VIII}}$$

Where,

$(SGPA)_{VII}$	=	SGPA of VII Semester
$(Cr)_{VII}$	=	Total Credits for VII Semester
$(SGPA)_{VIII}$	=	SGPA of VIII Semester
$(Cr)_{VIII}$	=	Total Credits for VIII Semester

CGPA equal to 6.00 and above shall be considered as equivalent to First Class which shall be mentioned on Grade Card of VIII Semester as a foot note.

TABLE II
THEORY

Grade	Percentage of Marks	Grade Points
AA	$80 \leq$ Marks ≤ 100	10
AB	$70 \leq$ Marks < 80	9
BB	$60 \leq$ Marks < 70	8
BC	$55 \leq$ Marks < 60	7
CC	$50 \leq$ Marks < 55	6
CD	$45 \leq$ Marks < 50	5
DD	$40 \leq$ Marks < 45	4
FF	$00 \leq$ Marks < 40	0
ZZ	Absent in Examination	—

PRACTICAL

Grade	Percentage of Marks	Grade Points
AA	$85 \leq$ Marks ≤ 100	10
AB	$80 \leq$ Marks < 85	9
BB	$75 \leq$ Marks < 80	8
BC	$70 \leq$ Marks < 75	7
CC	$65 \leq$ Marks < 70	6
CD	$60 \leq$ Marks < 65	5
DD	$50 \leq$ Marks < 60	4
FF	$00 \leq$ Marks < 50	0
ZZ	Absent in Examination	—

(**15**) (i)   The scope of the subjects shall be as indicated in the syllabi.
  (ii) The medium of instruction and examination shall be English.

(**16**) The Schemes of teaching & examination of Semester I & II (Group A & B) of B.E. /B.Text. E./B.Tech. (Chem.Engg.)/ B.Tech. (Chem. Tech.) (Polymer) (Plastic) Tech. had been already implemented from the session 2019-2020 which was notified vide Direction No. 26/2019.

(**17**) As per A.I.C.T.E. Model Curriculum, an Induction Program of three (3) weeks duration is mandatory to the students at the start of the first semester.

(**18**) The Schemes of teaching & examination of Semester III to VIII of B.E./ B.Text.E./ B.Tech. (Chem.Engg.) (C.B.C.S.) of the branches Civil Engg., Mechanical Engg., Electronics & Telecommunication Engg., Computer Science & Engg., Computer Engg., Electrical Engg., Electrical Engg. (Electronics & Power), Electrical & Electronics Engg., Information Technology, Textile Engg., Chemical Engg., (C.B.C.S.) as per A.I.C.T.E. Model Curriculum shall be implemented in phase wise manner as under :

  (i) For Semester III & IV from the session   -   2020-2021
  (ii) For Semester V & VI from the session   -   2021-2022
  (iii) For Semester VII & VIII from the session -   2022-2023

(**19**) The Schemes of teaching & examination of Semester I & II of B.E. / B.Text.E./ B.Tech. (Chemical Engg.) (common to all branches) and Semester III to VIII of the branches Civil Engg., Mechanical Engg., Electronics & Telecommunication Engg., Computer Science & Engg., Computer Engg., Electrical Engg., Electrical Engg. (Electronics & Power), Electrical & Electronics Engg., Information Technology, Textile Engg., Chemical Engg., (C.B.C.S.) as per A.I.C.T.E. Model Curriculum shall be as per Appendices A,B,C,D,E,F,G,H,I,J,K and L appended with this Direction.

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(20) (i) The Semester wise chart regarding the workload and Credits as per A.I.C.T.E. Model Curriculum guidelines for Engineering & Technology Courses for the Schemes of teaching & examination of Sem. III to VIII is as under :

CHART

Sem.	Theory	Pract.	Theory credits	Pract. Credits	Semester Credits	Hours/ week	Remarks
I	4	4	15	5	20	25	Started from session 2019-20
II	4	4	15	5	20	25	
III	5	4	16	4	20	26	ES 2T, 0 credit
IV	5	4	18	4	22	26	ES 2T, 2 credits
V	5	4	16	4	20	24	PE-1,OE-1
VI	5	4	16	4	20	24	PE-1,OE-1
VII	5	3	16	3+4	23	30	PE-2 or 3, Project seminar - 8 hrs, 4 credits
VIII	4	2	12	2+6	20	28	PE-1 or 2, Project seminar 12hrs, 6 credits
Total	**37**	**29**	**124**	**41**	**165**		

(ii) The workload for the subject Environment Studies for Semester III & IV (3ES06 & 4ES06) which is common for all branches in all the Faculties as per Ordinance No. 42/2005 is as : 2 theory in III semester with no credits, 2 theory in IV semester with 2 credits and examination at the end of IV semester at college level having distribution as : 80 (Max. marks for Theory) + 20 (Internal) = 100 (Total marks) – 40 (Minimum marks for passing)

(iii) Open Electives (OE): Open Elective to be opted from the courses offered by other disciplines of Engineering & Technology of the university / Massive Open learning Courses (MOOC) such as SWAYAM pertaining to the profession.

(iv) Students completing foreign language course or completing minimum 4 weeks internship (Full time in Vacations) or participating in sports at National / International level shall be exempted from O.E. in the same / adjacent semester.

(v) An Orientation Program of 15 hours duration /MOOC to be offered to the students during (a)VthSemester : Indian Constitution (b) VIth Semester: Indian Traditional Knowledge.

(21) The Provisions of Ordinance No. 18 of 2001 in respect of an Ordinance to provide grace marks for passing in a Head of passing and improvement of division (Higher Class) and getting distinction in the subject and condonation of deficiency of marks in a subject in all the Faculties prescribed by the Direction No. 15 of 2017 shall be applicable to each examination under this Direction.

(22) An examinee who does not pass; or who fails to present himself/herself for the examination shall be eligible for re-admission to the same examination/semester, on payment of fresh fees and such other fees as may be prescribed from time to time.

(23) A candidate who could not complete a semester satisfactorily or who has failed will be eligible for readmission to the same semester.
However, re-admission to semester should be allowed only when a regular session is running for the particular semester.

(24) One who has passed the Final B.E./B.Text.E./B.Tech. (Chem. Engg.)/B.Tech. (Chem. Tech.) Polymer (Plastic) Tech. examination of the University in one branch and who desires to take B.E./B.Text.E./B.Tech.(Chem. Engg.)/ B.Tech. (Chem. Tech.) Polymer (Plastic) Tech. Degree in another branch shall be admitted to the third Semester of that branch and shall be governed by this Direction for all other purposes.

(25) After examinations the Board of Examination & Evaluation shall publish the result of the examinees as early as possible and the branch wise merit list shall be notified as per Ordinance No.6.

(26) Notwithstanding anything to the contrary in this Direction, no one shall be admitted to any examination under this Direction, if he/she has already passed the said examinations or an equivalent examinations of any statutory University.

(27) (i) The examinees who have passed in all the subjects prescribed for all the examinations of the particular branch shall be eligible for award of the Degree of Bachelor of Engineering / Bachelor of Technology (Chemical Technology) Polymer (Plastic) in the branch concerned, Bachelor of Textile Engineering and Bachelor of Technology (Chemical Engineering).

(ii) The Degree certificate in the prescribed form shall be signed by the Vice-Chancellor.

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(28) The Guidelines of the A.I.C.T.E. New Delhi and D.T.E., Govt. of Maharashtra, Mumbai shall be applicable from time to time after having noted / approved by the Competent Authority.

(29) The existing Direction No. 26/2019 shall stand abrogated stage wise and only applicable to the students who have already sought their admissions as per its provisions and shall abrogated after exhausting the chances given to the failure students of Semester I /II (Group A & B) of B.E. /B.Text. E./B.Tech. (Chem.Engg.) of the University.

(30) The provisions in existing Direction Nos. 31/2011, 31/2012, 3/2013, 16/2014, 12/2016, 11/2017 and 37/2018 shall stand only be applicable to the students of Semester III to VIII of the branches Civil Engg., Mechanical Engg., Production Engg., Electronics & Telecommunication Engg., Electronics Engg., Instrumentation Engg., Computer Science & Engg., Computer Engg., Electrical Engg., Electrical Engg. (Electronics & Power), Electrical Engg. (Electrical & Power), Electrical & Electronics Engg., Information Technology, Textile Technology, Chemical Engg., Chemical Technology (Polymer) (Plastic) and Biomedical Engg. who have already sought their admissions as per its provisions and shall stand abrogated after exhausting the chances given to the failure students of Old Course by the University.

Date :- 24/10/2020

Sd/-
(Dr.M. G.Chandekar)
Vice Chancellor

Four Year Degree Course in Bachelor of Engineering Branch : B.E./B.Tech./B.Text. E.(Common to all the Branches)   **Appendix-A**
Semester Pattern (Choice Based Credit system)

			TEACHING SCHEME						EXAMINATION SCHEME									
			\multicolumn{5}															

Semester :FIRST/ SECOND GROUP A

			TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS		THEORY					PRACTICAL			
Sr. No.	Subject Code	Subject	Lecture	Tutorial	P/D			DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESMENT	TOTAL	MIN. PASSING MARKS		MAX. MARKS		TOTAL	MIN. PASSING MARKS
													EXTERNAL	INTERNAL			
THEORY																	
01	1 A 1	Engineering Mathematics I	3	1	_	4	4	3	80	20	100	40		_	_	_	_
02	1 A 2	Engineering Physics	4	_	_	4	4	3	80	20	100	40		_	_	_	_
03	1 A 3	Engineering Mechanics	3	1	_	4	4	3	80	20	100	40		_	_	_	_
04	1 A 4	Computer Programming	3	_	_	3	3	3	80	20	100	40		_	_	_	_
PRACTICALS																	
05	1 A 5	Workshop Practice	_	_	4	4	2	_	_	_	_	_		25	25	50	25
06	1 A 6	Engineering Physics Laboratory	_	_	2	2	1	_	_	_	_	_		25	25	50	25
07	1 A 7	Engineering Mechanics Laboratory	_	_	2	2	1	_	_	_	_	_		25	25	50	25
08	1 A 8	Computer Programming Laboratory	_	_	2	2	1	_	_	_	_	_		25	25	50	25
		TOTAL	13	2	10	25	20				400					200	
	\multicolumn{6}{l}{Note- An Induction Program of Three Weeks duration to be offered to the students at the start of First Year.}													**TOTAL**	600	

Semester :FIRST/ SECOND GROUP B

THEORY																	
01	1 B 1	Engineering Mathematics II	3	1	_	4	4	3	80	20	100	40		_	_	_	_
02	1 B 2	Engineering Chemistry	4	_	_	4	4	3	80	20	100	40		_	_	_	_
03	1 B 3	Basic Electrical Engineering	3	1	_	4	4	3	80	20	100	40		_	_	_	_
04	1 B 4	Engineering Graphics	3	_	_	3	3	3	80	20	100	40		_	_	_	_
PRACTICALS																	
05	1 B 5	English Communication Skills Laboratory	_	_	4	4	2	_	_	_	_	_		25	25	50	25
06	1 B 6	Engineering Chemistry Laboratory	_	_	2	2	1	_	_	_	_	_		25	25	50	25
07	1 B 7	Basic Electrical Engineering Laboratory	_	_	2	2	1	_	_	_	_	_		25	25	50	25
08	1 B 8	Engineering Graphics Laboratory	_	_	2	2	1	_	_	_	_	_		25	25	50	25
		TOTAL	13	2	10	25	20									200	
														TOTAL	600	

Note- An Induction Program of Three Weeks duration to be offered to the students at the start of First Y

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2020 - PART ON

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ESTD 2009

Appendix – B

The procedure for bifurcation of the students in Group – A and Group-B of First Year Scheme for B.E. / B.Text.E. / B.Tech. (Chem. Engg.) / B.Tech. (Chem. Tech.) Polymer (Plastic) Tech.

1) The sanctioned intake and / or the number of candidates admitted to first year Engineering shall be divided into two groups as A and B in multiples of 60 preferably at the institute level.

2) Group-A candidates shall register for Group-A subjects in first semester and Group-B candidates shall register for Group-B subjects in first semester.

3) The candidates shall be examined for their subjects from the respective groups in first semester.

4) In the Second semester, candidates from Group-B shall register for subject of Group-A. Similarly, candidates from Group-A shall register for subjects of Group-B.

5) The candidates shall be examined for their subjects from the other groups in second semester.

6) Thus, at the end of the first year, all the subjects shall be studied by the candidates from both the groups.

7) The mark list shall show only the group obtained in respective Semester, like First Semester Group- B, First Semester Group-A.

8) The exercise on the part of the college shall be to ensure that the candidates fill up the examination forms correctly according to the subjects group they have registered in both the semesters.

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Four Year Degree Course in Bachelor of Engineering Branch: **CIVIL ENGINEERING**
Semester Pattern (Choice Based Credit Grade System)

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL				
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
SEMESTER : THIRD																
THEORY																
01	3CE01	Engineering Mathematics-III	3	1	--	4	4	3	80	20	100	40	--	--	--	--
02	3CE02	Strength of Materials	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	3CE03	Building Construction & Engineering. Geology	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	3CE04	Transportation Engineering	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	3CE05	Concrete Technology & RCC	3	--	--	3	3	3	80	20	100	40	--	--	--	--
06	4ES06	**Environmental Science	2	--	--	2	--	--	--	--	--	--	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
07	3CE07	Strength of Materials- lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	3CE08	Building Construction & Engineering. Geology-lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	3CE09	Transportation Engineering-lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
10	3CE10	Concrete Technology & RCC-lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	17	1	8	26	20	--	--	--	500	--	--	--	200	--
		Grand Total													700	

Note: **The Examination of Mandatory Subject Environmental Science shall be conducted in IV Semester.

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2020 - PART ONE

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SEMESTER : FOURTH

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL				
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks Int.	Max. Marks Ext.	Total	Min. Passing Marks
THEORY																
01	4CE01	Building Planning Designing & CAD	3	--	--	3	3	4	80	20	100	40	--	--	--	--
02	4CE02	Hydrology & Water Resource Engg.	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	4CE03	Surveying	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	4CE04	Geotechnical Engineering- I	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	4CE05	Structural Analysis - I	3	1	--	4	4	3	80	20	100	40	--	--	--	--
06	4ES06	**Environmental Science	2	--	--	2	2	3	**80**	**20**	**100**	**40**	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
07	4CE07	Building Planning Designing & CAD -lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	4CE08	Hydrology & Water Resource Engg. – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	4CE09	Surveying – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
10	4CE10	Geotechnical Engineering- I- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	17	1	8	26	22	--	--	--	600	--	--	--	200	--
											Grand Total				**800**	

Note: **The Examination of Subject Environmental Science shall be conducted in IV Semester.

Dr.Hemant M. Baradkar
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Jagadambha College of Engineering &
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			TEACHING SCHEME					EXAMINATION SCHEME								

<table>
<tr><td colspan="17" align="center">SEMESTER : FIFTH</td></tr>
<tr>
<td rowspan="4">Sr. No.</td>
<td rowspan="4">Subject Code</td>
<td rowspan="4">Subject</td>
<td colspan="5">TEACHING SCHEME</td>
<td colspan="9">EXAMINATION SCHEME</td>
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<tr>
<td colspan="3">HOURS / WEEK</td>
<td rowspan="3">Total HOURS/WEEK</td>
<td rowspan="3">CREDITS</td>
<td colspan="5">THEORY</td>
<td colspan="4">PRACTICAL</td>
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<tr>
<td rowspan="2">Lecture</td>
<td rowspan="2">Tutorial</td>
<td rowspan="2">P/D</td>
<td rowspan="2">Duration Of Paper (Hr.)</td>
<td rowspan="2">Max. Marks Theory Paper</td>
<td rowspan="2">Internal Marks</td>
<td rowspan="2">Total</td>
<td rowspan="2">Min. Passing Marks</td>
<td colspan="2">Max. Marks</td>
<td rowspan="2">Total</td>
<td rowspan="2">Min. Passing Marks</td>
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<tr>
<td>Int.</td>
<td>Ext.</td>
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<tr><td colspan="17">THEORY</td></tr>
<tr>
<td>01</td><td>5CE01</td><td>Design of Reinforced & Prestressed Concrete Structures</td>
<td>3</td><td>1</td><td>--</td><td>4</td><td>4</td><td>3</td><td>80</td><td>20</td><td>100</td><td>40</td><td>--</td><td>--</td><td>--</td><td>--</td>
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<tr>
<td>02</td><td>5CE02</td><td>Surveying & Geomatics</td>
<td>3</td><td>--</td><td>--</td><td>3</td><td>3</td><td>3</td><td>80</td><td>20</td><td>100</td><td>40</td><td>--</td><td>--</td><td>--</td><td>--</td>
</tr>
<tr>
<td>03</td><td>5CE03</td><td>Numerical Methods &Computer Programming</td>
<td>3</td><td>--</td><td>--</td><td>3</td><td>3</td><td>3</td><td>80</td><td>20</td><td>100</td><td>40</td><td>--</td><td>--</td><td>--</td><td>--</td>
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<tr>
<td>04</td><td>5CE04</td><td>Professional Elective –I</td>
<td>3</td><td>--</td><td>--</td><td>3</td><td>3</td><td>3</td><td>80</td><td>20</td><td>100</td><td>40</td><td>--</td><td>--</td><td>--</td><td>--</td>
</tr>
<tr>
<td>05</td><td>5CE05</td><td>Open Elective – I</td>
<td>3</td><td>--</td><td>--</td><td>3</td><td>3</td><td>3</td><td>80</td><td>20</td><td>100</td><td>40</td><td>--</td><td>--</td><td>--</td><td>--</td>
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<tr><td colspan="17">PRACTICALS / DRAWING / DESIGN</td></tr>
<tr>
<td>06</td><td>5CE06</td><td>Design of Reinforced & Prestressed Concrete Structures- lab</td>
<td>--</td><td>--</td><td>2</td><td>2</td><td>1</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>25</td><td>25</td><td>50</td><td>25</td>
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<td>07</td><td>5CE07</td><td>Surveying & Geomatics -lab</td>
<td>--</td><td>--</td><td>2</td><td>2</td><td>1</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>25</td><td>25</td><td>50</td><td>25</td>
</tr>
<tr>
<td>08</td><td>5CE08</td><td>Numerical Methods &Computer Programming -lab</td>
<td>--</td><td>--</td><td>2</td><td>2</td><td>1</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>25</td><td>25</td><td>50</td><td>25</td>
</tr>
<tr>
<td>09</td><td>5CE09</td><td>Professional Elective –I -lab</td>
<td>--</td><td>--</td><td>2</td><td>2</td><td>1</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>25</td><td>25</td><td>50</td><td>25</td>
</tr>
<tr>
<td colspan="3" align="right">Total</td>
<td>15</td><td>1</td><td>8</td><td>24</td><td>20</td><td>--</td><td>--</td><td>--</td><td>500</td><td>--</td><td>--</td><td>--</td><td>200</td><td>--</td>
</tr>
<tr>
<td colspan="13"></td>
<td colspan="2" align="right">Grand Total</td>
<td colspan="2">700</td>
</tr>
</table>

Note : Open Elective – I to be opted from the Courses offered by the other Engineering & Technology courses from the College / Deptts. of the University.

5CE04 & 5CE09 Prof. Elective I : (i) Highway Construction & Management (ii) Repairs & Rehabilitation of Structures (iii) Sustainable Construction Methods iv) Watershed Engg. & Management

5CE05: Open Elective I : (i) Basic to Building Construction (ii) Disaster Management (iii) Soft Skills and Interpersonal Communication

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SEMESTER : SIXTH

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY						PRACTICAL			
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	6CE01	Design of Steel Structures	3	1	--	4	4	3	80	20	100	40	--	--	--	--
02	6CE02	Environmental Engineering - I	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	6CE03	Fluid Mechanics	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	6CE04	Prof. Elective - II	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	6CE05	Open Elective - II	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	6CE06	Design of Steel Structures-lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	6CE07	Environmental Engineering – I-lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	6CE08	Fluid Mechanics-lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	6CE09	Mini Project	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	15	1	8	24	20	--	--	--	500	--	--	--	200	--
											Grand Total				700	

Note : i) Open Elective – II to be opted from the Courses offered by the other Engineering & Technology courses from the College / Deptts. of the University.

ii) Students need to do compulsory Two (2) weeks Internship after 6th Semester and that shall be monitored by allotted Final year Project Guides.

6CE04 : PE (II) : (i) Advanced Construction Materials **(ii)** Geographic Information Systems & Science **(iii)** Masonry Structures **(iv)** Solid & Hazardous Waste Management **(v)** Traffic Engineering & Management

6CE05 : OE (II) : (i) Environmental Management (ii) Human Resource Development & Organizational Behavior (iii) Introduction to Earthquake Engineering
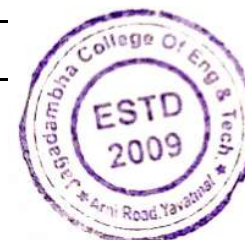
Dr.Hemant M. Baradkar
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SEMESTER : SEVENTH

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK					THEORY						PRACTICAL			
			Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS	Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	7CE01	Structural Analysis - II	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	7CE02	Geotechnical Engineering - II	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	7CE03	Hydraulic Engineering	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	7CE04	Environmental Engineering -II	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	7CE05	Professional Elective- III	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	7CE06	Computational Structure Analysis –lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	7CE07	Geotechnical Engineering – II- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	7CE08	Environmental Engineering –II- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	7CE09	Project & Seminar	--	--	8	8	4	--	--	--	--	--	50	--	50	25
		Total	15	0	14	29	22	--	--	--	500	--	--	--	200	--
														Grand Total	**700**	

7CE05 Prof Elect. III : (i) Analysis & Design of Structures for Earthquake & Wind **(ii)** Environmental Impact Assessment & Life Cyc[...] **iv)** Wa[...]

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SEMESTER : EIGHT

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY						PRACTICAL		Total	Min Passing Mark
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks		Max. Marks			
														Int.	Ext.		
THEORY																	
01	8CE01	Construction Project Management	3	--		3	3	3	80	20	100	40		--	--	--	--
02	8CE02	Construction Economics & Estimating - Costing	3	--		3	3	3	80	20	100	40		--	--	--	--
03	8CE03	Professional Elective- IV	3	--		3	3	3	80	20	100	40		--	--	--	--
04	8CE04	Professional Elective-V	3	--		3	3	3	80	20	100	40		--	--	--	--
PRACTICALS / DRAWING / DESIGN																	
05	8CE05	Construction Economics & Estimating – Costing – lab.	--	--	2	2	1	--	--	-- --	--	--		25	25	50	25
06	8CE06	Professional Elective- IV – lab.	--	--	2	2	1	--	--	-- --	--	--		25	25	50	25
07	8CE07	Project & Seminar	--	--	12	12	6	--	--	--	--	--		75	75	150	75
		Total	12	0	16	28	20	--	--	--	400	--		--	--	250	--
													Grand Total			650	

8CE03 : Prof. Elect IV: (i) Advanced Design of Steel Structures (ii) Advanced Pre-stressed Concrete Structures (iii) Advanced Water Treatment (iv) Industrial Waste Water Treatment
(v) Structural Analysis by Matrix Methods

8CE04 : Prof Elect V : (i) Advanced Geotechnical Engineering (ii) Advanced Structural Analysis (iii) Advanced Design of RCC Structures (iv)Advanced Waste Water Engineering
(v) Construction Equipment & Machinery (vi) Finite Element Methods

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Semester Pattern (Choice Based Credit Grade System)

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL				
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	3ME01	Mathematics-III	3	1	--	4	4	3	80	20	100	40	--	--	--	--
02	3ME02	Manufacturing Processes	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	3ME03	Mechanics of Materials	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	3ME04	Engineering Thermodynamics	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	3ME05	Fluid Mechanics	3	--	--	3	3	3	80	20	100	40	--	--	--	--
06	4ES06	**Environmental Studies	2	--	--	2	--	--	--	--	--	--	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
07	3ME07	Manufacturing Processes- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	3ME08	Mechanics of Materials- lab .	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	3ME09	Fluid Mechanics- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
10	3ME10	Machine Drawing- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	17	1	8	26	20	--	--	--	500	--	--	--	200	--
											Grand Total				**700**	

Note: **The Examination of the Subject Environmental Studies shall be conducted in IV Semester.

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2020 - PART ONE - 118

Dr.Hemant M. Baradkar
Principal
Jagadambha College of Engineering &
Technology, Ami Road, Kinhi, Yavatmal

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK					THEORY					PRACTICAL				
			Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS	Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	4ME01	Material Science	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	4ME02	Energy Conversion - I	3	1	--	4	4	3	80	20	100	40	--	--	--	--
03	4ME03	Manufacturing Technology	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	4ME04	Basic Electrical Drives & Control	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	4ME05	Hydraulic & Pneumatic Systems	3	--	--	3	3	3	80	20	100	40	--	--	--	--
06	4ES06	**Environmental Studies	2	--	--	2	2	3	80	20	100	40	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
07	4ME07	Material Science-lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	4ME08	Manufacturing Technology-lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	4ME09	Basic Electrical Drives & Control -lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
10	4ME10	Hydraulic & Pneumatic Systems-lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	17	1	8	26	22	--	--	--	600	--	--	--	200	--
														Total	800	

Note: **The Examination of Mandatory Subject Environmental Science shall be conducted in IV Semester.

Dr.Hemant M. Baradkar
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| | | | TEACHING SCHEME | | | | | EXAMINATION SCHEME | | | | | | | | | |
| | | | | | | | | THEORY | | | | | | PRACTICAL | | | |

| Sr. No. | Subject Code | Subject | HOURS / WEEK | | | Total HOURS/WEEK | CREDITS | Duration Of Paper (Hr.) | Max. Marks Theory Paper | Internal Marks | Total | Min. Passing Marks | Max. Marks | | Total | Min. Passing Marks |
			Lecture	Tutorial	P/D								Int.	Ext.		
THEORY																
01	5ME01	Heat Transfer	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	5ME02	Metrology & Quality Control	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	5ME03	Kinematics of Machines	3	1	--	4	4	3	80	20	100	40	--	--	--	--
04	5ME04	Measurement Systems	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	5ME05	Open Elective – I (OE-I)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	5ME06	Heat Transfer- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	5ME07	Metrology & Quality Control- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	5ME08	Kinematics of Machines- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	5ME09	Measurement Systems –lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	15	1	8	24	20	--	--	--	500	--	--	--	200	--
											Grand Total				**700**	

SEMESTER : FIFTH

Open Elective – I (For other Disciplines) : (i) Production Management   (ii) Manufacturing Techniques

An Orientation Program of 15 Hours duration / MOOCs on Advanced Courses line Machine learning, 3-D Printing, Virtual Reality, Supply Chain Management, Numerical Computation for Mechanical Engineers, Bio-mechanics, Fundamentals of nano-Engineering, Micro-Electro Mechanical Systems, Nano-to-Macro Transport Processes, Fundamentals of Photo Voltaics,Machine Tools etc. be offered during V semester.

Open Elective-I to be opted from the University's faculty of Engineering & Technology offered inter-disciplinary courses or MOOCs courses pertaining to the Engineering Profession.

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2020 - PART ONE - 120

Dr.Hemant M. Baradkar
Principal
Jagadambha College of Engineering &
Technology, Arni Road,Kinhi,Yavatmal

SEMESTER : SIXTH

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL				
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	6ME01	Design of Machine Elements	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	6ME02	Dynamics of Machines	3	1	--	4	4	3	80	20	100	40	--	--	--	--
03	6ME03	Control System Engineering	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	6ME04	Prof. Elective - I	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	6ME05	Open Elective - II	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	6ME06	Design of Machine Elements- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	6ME07	Dynamics of Machines- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	6ME08	Prof. Elective - I - lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	6ME09	Research Skills - lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	15	1	8	24	20	--	--	--	500	--	--	--	200	--
												Grand Total			700	

An Orientation Program of 15 Hours duration / MOOCs on Entrepreneurship Development to be offered during VI Semester.

6ME04: Prof. Elect. (I) : (i) Tool Engineering (ii) Non- Conventional Energy Sources (iii) Computer Aided Design & Simulation

6ME05: Open Elect. (II) [For other Disciplines] : (i) Non- Conventional Energy Sources (ii) Automobile Engineering

Open Elective-II to be opted from the University's faculty of Engineering & Technology offered inter disciplinary courses or MOOCs courses pertaining to the Engineering Profession.

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2020 - PAR

Dr.Hemant M. Baradkar
Principal
Jagadambha College of Engineering &
Technology, Arni Road, Kinhi, Yavatmal

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME								
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY						PRACTICAL			
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	7ME01	Mechatronics	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	7ME02	Productivity Techniques	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	7ME03	Industrial Management & Costing	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	7ME04	Energy Conversion - II	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	7ME05	Professional Elective- II	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	7ME06	Mechatronics- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	7ME07	Energy Conversion – II- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	7ME08	Professional Elective- II – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	7ME09	Technical Seminar & Project	--	--	8	8	4	--	--	--	--	--	50	--	50	25
		Total	15	0	14	29	22	--	--	--	500	--	--	--	200	--
										Grand Total				700		

7ME05: Prof. Elect.-II : (i) Computer Integrated Manufacturing   (ii) Robotics   (iii) Artificial Intelligence

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ESTD 2009

SEMESTER : EIGHT

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME								
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL		Total	Min. Passing Marks
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks			
													Int.	Ext.		
THEORY																
01	8ME01	Operation Research Techniques	3	--		3	3	3	80	20	100	40	--	--	--	--
02	8ME02	I.C. Engines	3	--		3	3	3	80	20	100	40	--	--	--	--
03	8ME03	Professional Elective-III	3	--		3	3	3	80	20	100	40	--	--	--	--
04	8ME04	Professional Elective- IV	3	--		3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
05	8ME05	I.C. Engines- lab.	--	--	2	2	1	--	--	-- --	--	--	25	25	50	25
06	8ME06	Prof. Elective-IV –lab.	--	--	2	2	1	--	--	-- --	--	--	25	25	50	25
07	8ME07	Project	--	--	12	12	6						75	75	150	75
		Total	12	--	16	28	20	--	--	--	400	--	--	--	250	--
														Grand Total		650

8ME03 Prof. Elect. –III : (i) Automobile Engineering **(ii)** Production Planning & Control   **(iii)** Product Design

8ME04 : Prof. Elect. IV: (i) Design of Transmission Systems **(ii)** Refrigeration & Air Conditioning **(iii)** Finite Element Analysis

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Four Year Degree Course in Bachelor of Engineering Branch: **ELECTRONICS & TELECOMMUNICATION ENGINEERING**
Semester Pattern (Choice Based Credit Grade System)

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME										
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY						PRACTICAL			
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	3ETC01	Engineering Mathematics-III	4	--	--	4	4	3	80	20	100	40	--	--	--	--
02	3ETC02	Electronic Devices & Circuits	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	3ETC03	Digital System Design	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	3ETC04	Electromagnetic Waves	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	3ETC05	Object Oriented Programming (ES)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
06	4ES06	**Environmental Science (Mandatory Course)	2	--	--	2	0	--	--	--	--	--	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
07	3ETC06	Electronic Devices and Circuits Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	3ETC07	Digital System Design	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	3ETC08	Object Oriented Programming Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
10	3ETC09	Electronic Workshop	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	18	0	8	26	20	--	--	--	500	--	--	--	200	--
														Total	**700**	

Note: **The Examination of Mandatory Subject Environmental Science shall be conducted in IV Semester.

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2020 - PART O

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Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK					THEORY						PRACTICAL			
			Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS	Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	4ETC01	Analog and Digital Communication	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	4ETC02	Analog Circuits	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	4ETC03	Network Theory	4	--	--	4	4	3	80	20	100	40	--	--	--	--
04	4ETC04	Signals and Systems	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	4ETC05	Values and Ethics (HS)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
06	4ES06	**Environmental Science (Mandatory Course)	2	--	--	2	2	3	80	20	100	40	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
07	4ETC06	Analog and Digital Communication Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	4ETC07	Analog Circuits Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	4ETC08	Network Theory Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
10	4ETC09	Signals & Systems Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	18	0	8	26	22	--	--	--	600	--	--	--	200	--
														Total	**800**	

Note: **The Examination of Mandatory Subject Environmental Science shall be conducted in IV Semester.**

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			TEACHING SCHEME					EXAMINATION SCHEME									
								THEORY						PRACTICAL			
Sr. No.	Subject Code	Subject	HOURS / WEEK			Total HOURS/WEEK	CREDITS	Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks	
			Lecture	Tutorial	P/D								Int.	Ext.			
THEORY																	
01	5ETC01	Microcontroller	4	--	--	4	4	3	80	20	100	40	--	--	--	--	
02	5ETC02	Control System	3	--	--	3	3	3	80	20	100	40	--	--	--	--	
03	5ETC03	Digital Signal Processing	3	--	--	3	3	3	80	20	100	40	--	--	--	--	
04	5ETC04	Professional Elective –I (PE-I)	3	--	--	3	3	3	80	20	100	40	--	--	--	--	
05	5ETC05	Open Elective – I (OE-I)	3	--	--	3	3	3	80	20	100	40	--	--	--	--	
PRACTICALS / DRAWING / DESIGN																	
06	5ETC06	Microcontroller Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25	
07	5ETC07	Digital Signal Processing Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25	
08	5ETC08	Power Electronics Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25	
09	5ETC09	Electronic lab based on Instrumentation	--	--	2	2	1	--	--	--	--	--	25	25	50	25	
		Total	16	0	8	24	20	--	--	--	500	--	--	--	200	--	
														Total		700	

SEMESTER : FIFTH

5ETC04: PE (I) : (i) Power Electronics (ii) Fiber Optic Communication (iii) Speech and Audio Processing

5ETC05: OE (I) : (i) Sensors and Transducers (ii) Data Structure (iii) Introduction to Java

A student will be eligible to get Under Graduate degree with Honors or additional Minor Engineering, if he/she completes an additional 20 credits relevant to the UG program. The detail of which is as follows:

Course Name	Semester	Credit
MOOCs Course-I	V	04
MOOCs Course-II	VI	04
MOOCs Course-III	VII	04
MOOCs Course-IV	VIII	04
Internship	V to VIII Sem	02
Industrial Visit	V to VIII Sem	02
	Total	20

Note: The student needs to submit
1. MOOCs Course passing certificate of each semester
2. Completion & Evaluation Certificate of Internship
3. Industrial Visit certificate.

Note: Only One MO   ster shall be considered.

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SEMESTER : SIXTH

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL				
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	6ETC01	Communication Network	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	6ETC02	Computer Architecture	4	--	--	4	4	3	80	20	100	40	--	--	--	--
03	6ETC03	Professional Elective -II (PE-II)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	6ETC04	Open Elective - II (OE-II)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	6ETC05	Economics for Engineers (HS)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	6ETC06	Communication Network Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	6ETC07	Electronic Circuit Design Lab (Hardware + Software)	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	6ETC08	Python Programming Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	6ETC09	Mini Project	--	--	2	2	1	--	--	--	--	--	50	--	50	25
		Total	16	0	8	24	20	--	--	--	500	--	--	--	200	--
														Total	**700**	

6ETC03: PE (II) : (i) CMOS Design (ii) Satellite Communication (iii) Adaptive Signal Processing

6ETC04: OE (II) : (i) Introduction to Python Programming (ii) Data Base Management System (iii) Renewable Energy Sources (Solar & Electric Vehicles)

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ESTD 2009

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME								
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL			
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks Int.	Max. Marks Ext.	Total	Min. Passing Marks
THEORY																
01	7ETC01	Microwave Theory and Techniques	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	7ETC02	Digital Image and Video Processing	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	7ETC03	Project Management and Entrepreneurship	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	7ETC04	Professional Elective - III (PE-III)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	7ETC05	Professional Elective- IV (PE-IV)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	7ETC06	Microwave Theory and Techniques Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	7ETC07	Digital Image and Video Processing Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	7ETC08	Project Management and Entrepreneurship Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	7ETC09	** Project Stage I (Seminar)	--	--	8	8	4	--	--	--	--	--	100	--	100	50
		Total	15	0	14	29	22	--	--	--	500	--	--	--	250	--
														Total	750	

7ETC04: PE(III) : (i) High Speed Electronics (ii) Mobile Communication and Networks (iii) Mixed Signal Design

7ETC05: PE(IV) : (i) Introduction to MEMS (ii)Error Correcting Codes(iii) Antenna and Propagation

Note: ** Seminar based on Final year Major Project

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			SEMESTER : EIGHT														

			TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK					THEORY						PRACTICAL			
Sr. No.	Subject Code	Subject	Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS	Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																	
01	8ETC01	Embedded Systems	3	--		3	3	3	80	20	100	40	--	--	--	--
02	8ETC02	Cryptography & Network security	3	--		3	3	3	80	20	100	40	--	--	--	--
03	8ETC03	Prof. Elective-V (PE-V)	3	--		3	3	3	80	20	100	40	--	--	--	--
04	8ETC04	Prof. Elective-VI (PE-VI)	3	--		3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																	
05	8ETC05	Embedded Systems- Lab	--	--	2	2	1	--	--	-- --	--	--	25	25	50	25
06	8ETC06	Cryptography & Network security Lab	--	--	2	2	1	--	--	-- --	--	--	25	25	50	25
07	8ETC07	Project stage -II	--	--	12	12	6	--	--	--	--	--	100	100	200	100
		Total	12	--	16	28	20	--	--	--	400	--	--	--	300	--
														Total	700	

8ETC03 : PE-V: (i) Nano Electronics (ii) Wireless Sensor Networks (iii) Wavelets (iv) Bio-medical Electronics

8ETC04 : PE-VI: (i) 5G-6G Mobile Communication (ii)Information Theory & Coding (iii) Scientific Computing

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Four Year Degree Course in Bachelor of Engineering Branch: COMPUTER ENGINEERING
Semester Pattern (Choice Based Credit Grade System)

SEMESTER : THIRD																	
			TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL				
Sr. No.	Subject Code	Subject	Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																	
01	3KE01	Mathematics-III	3	1	--	4	4	3	80	20	100	40	--	--	--	--
02	3KE02	Discrete Mathematics	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	3KE03	Programming Methodology	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	3KE04	Data Structures	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	3KE05	Analog Electronics & Digital Logic Design	3	--	--	3	3	3	80	20	100	40	--	--	--	--
06	4ES06	Environmental Studies *	2	--	--	2	0	--	--	--	--	--	-	-	-	-
PRACTICALS / DRAWING / DESIGN																	
07	3KE06	Programming Methodology - lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	3KE07	Data Structures - Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	3KE08	Analog Electronics & Digital Logic Design -Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
10	3KE09	C Skill-Lab I (#)	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	17	1	8	26	20	--	--	--	500	--	--	--	200	--
														Total	**700**	

Note: **The Examination of the Subject Environmental Science shall be conducted in IV Semester as per Ordinance No. 42 of 2005.

\# C Skill Lab I - based on technology like -**Python/Django** etc. to be decided by Individual Dept. of respective College.

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2020 - PART O

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Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK					THEORY					PRACTICAL				
			Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS	Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	4KE01	Artificial Intelligence	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	4KE02	Computer Networks	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	4KE03	Operating System	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	4KE04	Microprocessor & Interfacing	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	4KE05	Theory of Computation	3	1	--	4	4	3	80	20	100	40	--	--	--	--
06	4ES06	Environmental Studies *	2	--	--	2	2	3	80	20	100	40	-	-	-	-
PRACTICALS / DRAWING / DESIGN																	
07	4KE06	Computer Networks- Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	4KE07	Operating System Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	4KE08	Microprocessor & Interfacing. Lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
10	4KE09	C Skill-Lab II (#)	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	17	1	8	26	22	--	--	--	600	--	--	--	200	--
														Total	800	

(*) The subject Environmental Studies As per Ordinance no. 42 of 2005

C Skill Lab II - based on technology like -PHP, Web Technology, Raspberry Pi/Ardino, etc. to be decided by Individual Dept. of respective College.

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Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME								
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL			
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	5KE01	Databases	4	--	--	4	4	3	80	20	100	40	--	--	--	--
02	5KE02	Compilers	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	5KE03	Computer Organization & Architecture	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	5KE04	Professional Elective –I (PE-I) *	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	5KE05	Open Elective – I (OE-I) **	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	5KE06	Databases - Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	5KE07	Compilers - Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	5KE08	Emerging Tech. Lab-I	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	5KE09	C Skill Lab III (*)	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	16	0	8	24	20	--	--	--	500	--	--	--	200	--
														Total	**700**	

Prof. Elect I (*) : i) Cognitive Technologies   **Open Elect : I (**)** (i) Fund. of Fin. & Acctg.
                (ii) Advanced Comp. Architecture   (ii) Prin. of Marketing for Engg.
                (iii)Internet of Things   (iii)Entrepreneurship
                (iv)Graphics & Visualization

* **C Skill Lab III** - based on technology like - **Angular & React, Express, Node.js** etc.
to be decided by Individual Dept. of respective College

(@ Practicals using Mongo DB,MySQL

Emerging Technology Lab# I : AI   : IBM Watson, Microsoft Cognitive Toolkit , Tensor Flow, Apache System ML, Caffe, Open NN, Torch, Neuroph
                Cloud : Stackato, Docker, Salt Stack, OpenQRM- Openshift
        IoT   : Arduino, DeviceHive, Kaa, Home Assistant
        MM   : LibreOffice Draw, Lumen5, Openshot

An Orientation Program of 15 hours duration /MOOC on __Indian Constitution__ *to be offered to the students during the Vth Semester*
Open Elective I to be opted from the courses offered by other engineering technology boards of the university /Massive Open learning Courses (MOOC) such as SWAYAM pertaining to the profession

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SEMESTER : SIXTH

Sr. No.	Subject Code	Subject	Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS	Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks Int.	Max. Marks Ext.	Total	Min. Passing Marks
			TEACHING SCHEME					**EXAMINATION SCHEME — THEORY**					**PRACTICAL**			
			HOURS / WEEK													
THEORY																
01	6KE01	Software Engineering	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	6KE02	Algorithmic	4	--	--	4	4	3	80	20	100	40	--	--	--	--
03	6KE03	Signals & Systems	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	6KE04	Prof. Elective -II (PE-II)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	6KE05	Open Elective - II (OE-II)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	6KE06	Software Engg. – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	6KE07	Algorithmic – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	6KE08	Emerging Tech. Lab-II	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	6KE09	C Skill Lab IV (*)	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	16	0	8	24	20	--	--	--	500	--	--	--	200	--
														Total	**700**	

Prof. Elect II (*) : i) Natural Language Processing
    (ii) Parallel Computing
    (iii)Sensors & Actuators
    iv) Digital Media Processing

Open Elect : II (**) (i) Computational Biology
    (ii) Cyber Law & Ethics
    (iii) Intellectual Property Right

FOSS Tools & Technology for Practicals :
Natural Language Toolkit (NLTK),SpaCy, PyTorch-NLP, Natural, Retext, Text Blob
CloudStack, **FOSS Cloud Eucalyptus**
Devicehub, Zetta, Node-RED, Flutter, M2MLabs Mainspring
Inkscape, GIMP, Krita, Scribus, RawTherapee
* C Skill Lab IV - based on technology like - **DevOp to be decided by Individual Dept. of respective College**

An Orientation Program of 15 hours duration /MOOC on <u>Indian Constitution</u> *to be offered to the students during the Vth Semester* .

Open Elective II to be opted from the courses offered by other engineering technology boards of the university /Massive Open learning Courses (MOOC) such as SWAYAM pertaining to the profession

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ESTD 2009

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK					THEORY						PRACTICAL			
			Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS	Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	7KE01	Social Science & Engineering Economics	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	7KE02	Digital Signal Processing	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	7KE03	Cloud Computing	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	7KE04	Prof. Elective - III (PE-III) (*)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	7KE05	Prof. Elect.- IV (PE-IV) (**)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	7KE06	Digital Signal Processing - Lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	7KE07	Emerging Tech. Lab-III	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	7KE08	Emerging Tech. Lab-IV	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	7KE09	Project & Seminar	--	--	8	8	4	--	--	--	--	--	50	--	50	25
		Total	15	0	14	29	22	--	--	--	500	--	--	--	200	--
		Total													700	

Prof. Elect III (*) : (i) Robotics
(ii) Data Storage & Networks
(iii) Embedded Systems
iv) Rendering & Animation

Prof. Elect : IV (**) (i) Block Chain Fundamentals
(ii) Image Processing
(iii) Optimization Techniques

Emerging Tech. Lab# III : i) ROS, YARP, MRPT, Gazebo, OROCOS.
ii)OpenStack, Synnefo, Cloud Foundry
iii) ThingsBoard, Kinoma, SiteWhere
iv) Shotcut, Kdenlive, Scribus.

E. Tech. Lab# IV : (i) Google's ARCore, AR.js, ARToolKit, DroidAR Brio, Adobe Aero **(ii)Osquery, GoAudit, Grapl, OSSEC, Suricata, Panther**
(iii)DSA, Thinger, RIOT, Open Remote, Anjay   (iv)Blender, Screencastomatic, Openshot.

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			SEMESTER : EIGHT													
			TEACHING SCHEME					**EXAMINATION SCHEME**								
			HOURS / WEEK					**THEORY**					**PRACTICAL**			
Sr. No.	**Subject Code**	**Subject**	Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS	**Duration Of Paper (Hr.)**	**Max. Marks Theory Paper**	**Internal Marks**	**Total**	**Min. Passing Marks**	**Max. Marks**		**Total**	**Min. Passing Marks**
													Int.	Ext.		
			THEORY													
01	8KE01	Object Oriented Analysis & Design	3	--		3	3	3	80	20	100	40	--	--	--	--
02	8KE02	Professional Ethics & Management	3	--		3	3	3	80	20	100	40	--	--	--	--
03	8KE03	Prof. Elective-V (PE-V)	3	--		3	3	3	80	20	100	40	--	--	--	--
04	8KE04	Prof. Elective-VI (PE-VI)	3	--		3	3	3	80	20	100	40	--	--	--	--
			PRACTICALS / DRAWING / DESIGN													
05	8KE05	Emerging Tech. Lab-V	--	--	2	2	1	--	--	-- / --	--	--	25	25	50	25
06	8KE06	Emerging Tech. Lab-VI	--	--	2	2	1	--	--	-- / --	--	--	25	25	50	25
07	8KE07	Project & Seminar	--	--	12	12	6	--	--	--	--	--	75	75	150	75
		Total	12	--	16	28	20	--	--	--	400	--	--	--	250	--
														Total	**650**	

Prof. Elect V (*) : (i) Virtual & Augmented Reality
(ii) Cloud System & Infrastructure
(iii) Wireless Sensor Networks
iv) Scientific Computing

Prof. Elect : VI (**) (i) Distributed Ledger Technology
(ii) Multimedia Computing
(iii) Modeling & Simulation

Emerging Tech. Lab# V : Ethereum,Bigchain DB, Corda
OpenCV, Simple CV, Keras, Caffe
Open Eaagles, Repast, Open Simulator
ii) R Studio, Orange, D3.js, Ggplot2, Jupyter Notebooks
iii) Wireshark, Burp Suit, Nessus

Emerging Tech. Lab# VI : i) Hyperledger, HydraChain, MultiChain, Elements
ii) Google Colab, GPUImage, Cuda, Aforge/Accord.NET
iii) OR-Tools, Locust.io, httperf, Apache JMeter, Siege

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ESTD 2009

Four Year Degree Course in Bachelor of Engineering Branch: **ELECTRICAL ENGINEERING**
Semester Pattern (Choice Based Credit Grade System)

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL				
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	3EE01	Engineering Mathematics-III	3	1	--	4	4	3	80	20	100	40	--	--	--	--
02	3EE02	Electrical Circuit Analysis	2	1	--	3	3	3	80	20	100	40	--	--	--	--
03	3EE03	Electrical Machines - I	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	3EE04	Energy Resources & Generation	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	3EE05	Electronic Devices & Circuits	3	--	--	3	3	3	80	20	100	40	--	--	--	--
06	4ES06	**Environmental Studies	2	--	--	2	--	--	--	--	--	--	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
07	3EE06	Electrical Circuit Analysis – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	3EE07	Electrical Machines – I – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	3EE08	Electronic Devices & Circuits – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
10	3EE09	Electrical Technology – lab.	--	--	2	2	1	--	--	--	--	--	50	--	50	25
		Total	16	2	8	26	20	--	--				--	--	200	--
												TOTAL			700	

SEMESTER : THIRD

Note: **The Examination of the Subject Environmental Science shall be conducted in IV Semester. [As per Ordinance of 42/ 2005]

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SEMESTER : FOURTH

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK					THEORY						PRACTICAL			
			Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS	Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	4EE01	Electromagnetic Fields	2	1	--	3	3	3	80	20	100	40	--	--	--	--
02	4EE02	Electrical Measurements & Instrumentation	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	4EE03	Power Systems – I	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	4EE04	Analog & Digital Circuits	3	1	--	4	4	3	80	20	100	40	--	--	--	--
05	4EE05	Signals & Systems	3	--	--	3	3	3	80	20	100	40	--	--	--	--
06	4ES06	**Environmental Studies	2	--	--	2	2	3	80	20	100	40	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
07	4EE06	Electrical Measurements & Instrumentation – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	4EE07	Power Systems – I – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	4EE08	Analog & Digital Circuits - lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
10	4EE09	Electrical Technology – lab.	--	--	2	2	1	--	--	--	--	--	50	--	50	25
		Total	16	2	8	26	22	--	--	--	600	--	--	--	200	--
										TOTAL					800	

Note: **The Examination of the Subject Environmental Science shall be conducted in IV Semester. [As per Ordinance of 42/ 2005]

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			TEACHING SCHEME					EXAMINATION SCHEME									
									THEORY					**PRACTICAL**			
Sr. No.	Subject Code	Subject	**HOURS / WEEK**					Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	**Max. Marks**		Total	Min. Passing Marks
			Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS						Int.	Ext.		

SEMESTER : FIFTH

THEORY

01	5EE01	Control Systems	4	--	--	4	4	3	80	20	100	40	--	--	--	--
02	5EE02	Microprocessor & Microcontroller	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	5EE03	Electrical Machines - II	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	5EE04	Professional Elective –I (PE-I)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	5EE05	Open Elective – I (OE-I)	3	--	--	3	3	3	80	20	100	40	--	--	--	--

PRACTICALS / DRAWING / DESIGN

06	5EE06	Control Systems - lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	5EE07	Microprocessor & Microcontroller Lab	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	5EE08	Electrical Machines – II – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	5EE09	Electrical Technology – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
		Total	16	0	8	24	20	--	--	--	500	--	--	--	200	--
														TOTAL		700

Prof. Elective – I : (i) Power System Operation & Control   (ii) Electrical Engineering Materials (iii) Electronic Communication Theory

Open Elective – I : (i) Electrical Drives   (ii) Power Plant Engineering (For other Disciplines)

An Orientation Program of 15 Hours duration/ MOOCs on **Indian Constitution** to be offered during **V semester.**

Open Elective-I to be opted from the University's faculty of Engineering & Technology offered inter-disciplinary courses or MOOCs courses pertaining to the Engineering Profession.

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Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME								
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL			
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	6EE01	Power Electronics	4	--	--	4	4	3	80	20	100	40	--	--	--	--
02	6EE02	Power Systems – II	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	6EE03	Computer Aided Electrical Machine Design	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	6EE04	Prof. Elective -II (PE-II)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	6EE05	Open Elective - II (OE-II)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	6EE06	Power Electronics – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	6EE07	Power Systems – II – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	6EE08	Computer Aided Electrical Machine Design – lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
09	6EE09	Computer Technology – lab.	--	--	2	2	1	--	--	--	--	--	50	--	50	25
		Total	16	0	8	24	20	--	--	--	500	--	--	--	200	--
											TOTAL				700	

Prof. Elective – I : (i) Advanced Control Systems   (ii) Digital Communication Systems (iii) Industrial Electrical Systems
Open Elective - II (i) ENERGY AUDIT & MANAGEMENT   (ii) ELECTRICAL ESTIMATION & COSTING (For other Disciplines)

An Orientation Program of 15 Hours duration/ MOOCs on **Indian Traditional Knowledge** to be offered during **V semester.**
An Orientation Program of 15 Hours duration/MOOCS on **Enterprenureship Development** to be offered during **VI semester.**

Open Elective-I to be opted from the University's faculty of Engineering & Technology offered inter-disciplinary courses or MOOCs courses pertaining to the Engineering Profession.

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Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME								
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL			
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	7EE01	Electrical Energy Distribution & Utilization	3	--	--	3	3	3	80	20	100	40	--	--	--	--
02	7EE02	Digital Signal Processing	3	--	--	3	3	3	80	20	100	40	--	--	--	--
03	7EE03	Entrepreneurship & Project Management	3	--	--	3	3	3	80	20	100	40	--	--	--	--
04	7EE04	Professional Elect. - III (PE-III)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
05	7EE05	Professional Elect- IV (PE-IV)	3	--	--	3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
06	7EE06	Electrical Energy Distribution & Utilization- lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
07	7EE07	Digital Signal Processing –lab.	--	--	2	2	1	--	--	--	--	--	25	25	50	25
08	7EE08	Entrepreneurship & Project Management- lab.	--	--	2	2	1	--	--	--	--	--	50	--	50	25
09	7EE09	Project & Seminar	--	--	8	8	4	--	--	--	--	--	50	--	50	25
		Total	15	0	14	29	22	--	--	--	500	--	--	--	200	--
														TOTAL	700	

Prof. Elect. III - 7EE04: PE(III) : (i) Wind & Solar Energy Systems   (ii) VLSI Design   (iii) Computer Architecture & Organization

Prof. Elect. IV - 7EE05: PE(IV) : (i) Artificial Intelligence   (ii) Electrical Drives & Control   (iii) Digital Control Systems

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SEMESTER : EIGHT

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY					PRACTICAL				
			Lecture	Tutorial	P/D			Duration Of Paper (Hr.)	Max. Marks Theory Paper	Internal Marks	Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
													Int.	Ext.		
THEORY																
01	8EE01	Embedded Systems	3	--		3	3	3	80	20	100	40	--	--	--	--
02	8EE02	Power Systems Protection	3	--		3	3	3	80	20	100	40	--	--	--	--
03	8EE03	Professional Elect.-V (PE-V)	3	--		3	3	3	80	20	100	40	--	--	--	--
04	8EE04	Professional Elect-VI (PE-VI)	3	--		3	3	3	80	20	100	40	--	--	--	--
PRACTICALS / DRAWING / DESIGN																
05	8EE05	Embedded Systems –lab.	--	--	2	2	1	--	--	-- --	--	--	25	25	50	25
06	8EE06	Power Systems Protection- lab.	--	--	2	2	1	--	--	-- --	--	--	25	25	50	25
07	8EE07	Project & Seminar	--	--	12	12	6	--	--	--	--	--	75	75	150	75
		Total	12	--	16	28	20	--	--	--	400	--	--	--	250	--
												TOTAL			650	

Prof. Elect. V - 8EE03: PE(V) : (i) Biomedical Electronics   (ii) Process Control Systems   (iii) Digital Image Processing

Prof. Elect. VI - 8EE04 : PE(VI) : (i) Robotics   (ii) Electrical Energy Conservation & Auditing   (iii) Electrical & Hybrid Vehicles

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