



# RajaRajeswari College of Engineering

(Approved by AICTE, New Delhi, Govt. of Karnataka & Affiliated to Visvesvaraya Technological University, Belgaum)

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## 1.1 Number of courses offered by the Institution across all programs during the year

2020-21					
Sl. No	Program code	Program Name	Course code	Course Name	Year of introduction
1	CS (UG) I SEM Common to all UG branches	Computer Science & Engineering	18MAT11	Calculus and Linear Algebra	2018
2			18PHY12/22	Engineering Physics	
3			18ELE13/23	Basic Electrical Engineering	
4			18CIV14/24	Elements of Civil Engineering & Mechanics	
5			18EGDL15/25	Engineering Graphics	
6			18PHYL16/26	Engineering Physics Laboratory	
7			18ELEL17/27	Basic Electrical Engineering Laboratory	
8			18EGH18	Technical English-I	
9	CS (UG) II SEM Common to all UG branches	Computer Science & Engineering	18MAT21	Advanced Calculus & Numerical Methods	2018
10			18CHE12/22	Engineering Chemistry	
11			18CPS13/23	C Programming for Problem Solving	
12			18ELN14/24	Basic Electronics	
13			18ME15/25	Elements of Mechanical Engineering	
14			18CHEL16/26	Engineering Chemistry Laboratory	
15			18CPL17/27	C Programming Laboratory	
16			18EGH28	Technical English-II	
17	CS (UG) III SEM	Computer Science & Engineering	18MAT31	Transform Calculus, Fourier Series And Numerical Techniques	2018
18			18CS32	Data Structures and Applications	
19			18CS33	Analog and Digital Electronics	
20			18CS34	Computer Organization	
21			18CS35	Software Engineering	
22			18CS36	Discrete Mathematical Structures	
23			18CSL37	Analog and Digital Electronics Laboratory	
24			18CSL38	Data Structures Laboratory	
25			18KVK39 /18KAK39	Vyavaharika Kannada (Kannada for communication)/Aadalitha Kannada (Kannada for Administration)	

  
Principal

RAJARAJESWARI  
COLLEGE OF ENGINEERING  
Ramohalli Cross, Bengaluru-7

### Campus

#14, Ramohalli Cross, Kumbalgodu, Mysore Road  
Bengaluru - 560 074

Ph : 080 - 28437124 / 28437375 Fax : 080 - 28437373

E-mail : info@rrce.org, enquiry@rrce.org

www.rrce.edu.in / www.rrce.org





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26	CS (UG) IV SEM	Computer Science & Engineering	18MAT41	Complex Analysis, Probability and Statistical Methods	2018
27			18CS42	Design and Analysis of Algorithms	
28			18CS43	Operating Systems	
29			18SC44	Microcontroller and Embedded Systems	
30			18CS45	Object Oriented Concepts	
31			18CS46	Data Communication	
32			18CSL47	Design and Analysis of Algorithm Laboratory	
33			18CSL48	Microcontroller and Embedded Systems Laboratory	
34			18CPC39	Constitution of India, Professional Ethics and Cyber Law	
35	CS (UG) V SEM	Computer Science & Engineering	18CS51	Management, Entrepreneurship for IT industry	2018
36			18CS52	Computer Networks and Security	
37			18CS53	Database Management System	
38			18CS54	Automata theory and Computability	
39			18CS55	Application Development using Python	
40			18CS56	Unix Programming	
41			18CSL57	Computer Network Laboratory	
42			18CSL58	DBMS Laboratory with mini project	
43			18CIV59	Environmental Studies	
44	CS (UG) VI SEM	Computer Science & Engineering	18CS61	System Software and Compilers	2018
45			18CS62	Computer Graphics and Visualization	
46			18CS63	Web Technology and its applications	
47			18CS641	Data Mining and Data Warehousing	
48			18EE653	Renewable Energy Resources	
49			18CSL66	System Software Laboratory	
50			18CSL67	Computer Graphics Laboratory with mini project	
51			18CSMP68	Mobile Application Development	
52	CS (UG) VII SEM	Computer Science & Engineering	17CS71	Web Technology and its applications	2017
53			17CS72	Advanced Computer Architectures	
54			17CS73	Machine Learning	
55			17CS742	Cloud Computing and its Applications	
56			17CS754	Storage Area Networks	
57			17CSL76	Machine Learning Laboratory	
58			17CSL77	Web Technology Laboratory with mini projec	
59			17CSP78	Project Work Phase-I + Project work Seminar	

#14, Ramohalli Cross, Kumbalgodu, Mysore Road,  
Bengaluru - 560 074

Ph : 080 - 28437124 / 28437375 Fax : 080 - 28437373

E-mail : info@rrce.org, enquiry@rrce.org

www.rrce.edu.in / www.rrce.org

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60	CS (UG) VIII SEM	Computer Science & Engineering	17CS81	Internet of Things and Applications	2017
61			17CS82	Big Data Analytics	
62			17CS832	User Interface Design	
63			17CS84	Internship/ Professional Practice	
64			17CSP85	Project Work-II	
65			17CSS86	Seminar	
66	ECE(UG) III SEM	Electronics & Communica tion Engineering	18MAT31	Transform calculus, fourier series and Numerical techniques	2018
67			18 EC 32	NETWORK THEORY	
68			18EC33	ELECTRONIC DEVICES AND INSTRUMENTATION	
69			18 EC 34	DIGITAL SYSTEM DESIGN	
70			18EC35	COMPUTER ORGANIZATION & ARCHITECTURE	
71			18 EC 36	POWER ELECTRONICS	
72			18CPC39	CONSTITUTION OF INDIA PROFESSIONAL ETHICS AND CYBER LAW	
73			18 ECL 37	ELECTRONIC DEVICES AND INSTRUMENTATION LAB	
74			18ECL38	DIGITAL SYSTEM DESIGN LAB	
75			18KVK39/ 18KAK39	Vyavaharika Kannada / Aadalitha Kannada	
76	ECE(UG) IV SEM	Electronics & Communica tion Engineering	18MAT41	COMPLEX ANALYSIS ,PROBABILITY & STATICAL METHODS	2018
77			18EC42	ANALOG CIRCUITS	
78			18EC43	CONTRO SYSTEM	
79			18EC44	ENGINEERING STATISTICS AND LINEAR ALGEBRA	
80			18EC45	SIGNALS & SYSTEMS	
81			18EC46	MICRO CONTROLLER	
82			18KVK /KAK49	Vyavaharika Kannada (Kannada for communication)/Aadalitha Kannada (Kannada for Administration)	
83			18ECL47	MICRO CONTROLLER LABORATORY	
84			18ECL48	ANALOG CIRCUITS LABORATORY	

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85	ECE(UG) V SEM	Electronics & Communica tion Engineering	18ES51	TECHNOLOGICAL INNOVATION MANAGEMENT AND ENTERPRENOUSHIP	2018
86			18EC52	DIGITAL SIGNAL PROCESSING	
87			18EC53	PRINCIPALS OF COMMUNICATION SYSTEM	
88			18EC54	INFORMATION THEORY AND CODING	
89			18EC55	ELECTROMAGNETIC WAVES	
90			18EC56	VERILOG HDL	
91			18CIV59	ENVIRONMENTAL STUDIES	
92			18ECL57	DIGITAL SIGNAL PROCESSING LAB	
93			18ECL58	VERILOG HDL LAB	
94	ECE(UG) VI SEM	Electronics & Communica tion Engineering	18EC61	DIGITAL COMMUNICATION	2018
95			18EC62	EMBEDED SYSTEMS	
96			18EC63	MICROWAVE & ANTENNAS	
97			18EC641(PE)	OPERATING SYSTEMS	
98			18EC644(PE)	DIGITAL SYSTEMS USING VERILOG	
99			18CS653(OE)	PROGRAMMING IN JAVA	
100			18EE653(OE)	RENEWABLE ENERGY RESOURCES	
101			18ME651(OE)	NON CONVENTIONAL ENERGY	
102			18ECL66	EMBEDDED SYSTEM LABORATORY	
103			18ECL77	COMMUNICATION LABORATORY	
104			18ECP68	MINI PROJECT	
105	ECE(UG) VII SEM	Electronics & Communica tion Engineering	17EC71	MICROWAVE & ANTENNAS	2017
106			17EC72	DIGITAL IMAGE PROCESSING	
107			17EC73	POWER ELECTRONICS	
108			17EC741(PE3)	MULTIMEDIA COMMUNICATION	
109			17EC744(PE3)	CRYPTOGRAPHY	
110			17EC752(PE4)	INTERNET OF THINGS AND WIRELESS SENSOR NETWORKS	
111			17EC7559PE4)	SATELLITE COMMUNICATION	
112			17ECL76	ADVANCE COMMUNICATION LABORATORY	
113			17ECL77	VLSI LABORATORY	
114			17ECP 78	PROJECT WORK PHASE I	

*J. Adh*  
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RAJARAJESWARI

COLLEGE OF ENGINEERING

Ramohalli Cross, Bengaluru-74

Campus  
#14, Ramohalli Cross, Kumbalgodu, Mysore Road,  
Bengaluru - 560 074

Ph : 080 - 28437124 / 28437375 Fax : 080 - 28437373

E-mail : info@rrce.org, enquiry@rrce.org

www.rrce.edu.in / www.rrce.org





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115	ECE(UG) VIII SEM	Electronics & Communica tion Engineering	17EC81	WIRELESS CELLULAR& LTE 4G BROADBAND	2017
116			17EC82	FIBER OPTICS & NETWORKS	
117			17EC833(PE)	RADAR ENGINEERING	
118			17EC835(PE)	NETWORK & CYBER SECURITY	
119			17EC84	INTERNSHIP/PROFESSIONAL PRACTICE	
120			17ECP85	PROJECT WORK	
121			17ECS86	SEMINAR	
122	EEE(UG) III sem	Electrical & Electronics Engineering	18MAT31	Transform Calculus, Fourier Series And Numerical Techniques	2018
123			18EE32	Electric Circuit Analysis	
124			18EE33	Transformers and Generators	
125			18EE34	Analog Electronic Circuits	
126			18EE35	Digital System Design	
127			18EE36	Electrical and Electronic Measurements	
128			18EEL37	Electrical Machines Laboratory -I	
129			18EEL38	Electronics Laboratory	
130			18KVK39/ 18KAK39	Vyavaharika Kannada / Aadalitha Kannada	
131	EEE(UG)- IV Sem	Electrical & Electronics Engineering	18MAT41	Complex Analysis, Probability and Statistical Methods	2018
132			18EE42	Power Generation and Economics	
133			18EE43	Transmission and Distribution	
134			18EE44	Electric Motor	
135			18EE45	Electromagnetic Field Theory	
136			18EE46	Operational Amplifiers and Linear ICs	
137			18EEL47	Electrical Machines Laboratory -2	
138			18EEL48	Op- amp and Linear ICs Laboratory	
139			18MATDIP41	ADDITIONAL MATHEMATICS – II	
140			18CPH49	Constitution of India, Professional Ethics and Cyber Law	
141	EEE(UG)- V Sem	Electrical & Electronics Engineering	18EE51	Management and Entrepreneurship	2018
142			18EE52	Microcontroller	
143			18EE53	Power Electronics	
144			18EE54	Signals and Systems	
145			18EE55	Electrical Machine Design	
146			18EE56	High Voltage Engineering	
147			18EEL57	Microcontroller Laboratory	
148			18EEL58	Power Electronics Laboratory	

*[Signature]*  
Principal  
RAJARAJESWARI

**Campus**  
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Bengaluru - 560 074  
Ph : 080 - 28437124 / 28437375 Fax : 080 - 28437373  
E-mail : info@rrce.org, enquiry@rrce.org

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Ramohalli Cross, Bengaluru

[www.rrce.edu.in](http://www.rrce.edu.in) / [www.rrce.org](http://www.rrce.org)





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149	EEE(UG)- VI Sem	Electrical & Electronics Engineering	18EE61	Control Systems	2018
150			18EE62	Power System Analysis-1	
151			18EE63	Digital signal Processing	
152			18EE643	CAED(Computer Aided Electrical Drawing)	
153			18CV653	Occupational & Health Safety	
154			18CS653	Programming In Java	
155			18ME651	Non Conventional Energy Sources	
156			18EEL66	Control Systems Lab	
157			18EEL67	Digital Signal Processing Lab	
158			18EEMP68	Mini Project	
159	EEE(UG)- VII Sem	Electrical & Electronics Engineering	17EE71	Power system analysis-2	2018
160			17EE72	Power System Protection	
161			17EE73	High voltage Engineering	
162			17EE742	Electrical Power Utilization	
163			17EE752	Testing And Commissioning of Electrical Apparatus	
164			17EEL76	Power system simulation Lab	
165			17EEL77	Relay & High voltage Lab	
166			17EEP78	Project Phase 1	
167	EEE(UG)- VIII Sem	Electrical & Electronics Engineering	17EE81	Power system operation and control	2018
168			17EE82	Industrial Drives and Applications	
169			17EE832	Operation & Maintenance of Solar Electric Systems	
170			17EE84	Internship/ Professional Practice	
171			17EEP85	Project Work Phase II	
172			17EES86	Seminar	

*J. adl*  
Principal  
RAJARAJESWARI  
COLLEGE OF ENGINEERING  
Ramohalli Cross, Bengaluru-7A

## Campus

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Bengaluru - 560 074

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173	ME(UG) (3 SEM)	MECHANICAL ENGINEERING	18MAT31	Transform calculus, fourier series and Numerical techniques	2018
174			18ME32	Mechanics of Materials	
175			18ME33	Basic Thermodynamics	
176			18ME34	Material Science	
177			18ME35A or	Metal cutting and forming	
178			18ME35B	Metal Casting and Welding	
179			18ME36A or	Computer Aided Machine Drawing/	
180			18ME36B	Mechanical Measurements and Metrology	
181			18MEL37A	Material Testing lab	
182			18MEL37B	Mechanical Measurements and Metrology lab	
183			18MEL38A	Workshop and Machine Shop Practice (Consists of Fitting, and Machining)	
184			18MEL38B	Foundry, Forging and Welding lab	
185			18KVK39/49	Vyavaharika Kannada (Kannada for communication)/	
186			18KAK39/49	Aadalitha Kannada (Kannada for Administration)	
187			18CPC39	Constitution of India, Professional Ethics and Cyber Law	
188	ME(UG) (4 SEM)	MECHANICAL ENGINEERING	18MAT41	Mathematics	2018
189			18ME42	Applied Thermodynamics	
190			18ME43	Fluid Mechanics	
191			18ME44	Kinematics of Machines	
192			18ME45A	Metal cutting and forming	
193			18ME45B	Metal Casting and Welding	
194			18ME46A or	Computer Aided Machine Drawing/	
195			18ME46B	Mechanical Measurements and Metrology	
196			18MEL47A	Material Testing lab	
197			18MEL47B	Mechanical Measurements and Metrology lab	
198			18MEL48A	Workshop and Machine Shop Practice (Consists of Fitting, and Machining)	
199			18MEL48B	Foundry, Forging and Welding lab	
200			18KVK49/49	Vyavaharika Kannada (Kannada for communication)/	
201			18KAK49/49	Aadalitha Kannada (Kannada for Administration)	
202			18CPH49	Constitution of India, Professional Ethics and Cyber Law	

#14, Ramohalli Cross, Kumbalgodu, Mysore Road, Bengaluru - 560 074

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www.rrce.edu.in / www.rrce.org

Principal  
RAJARAJESWARI  
COLLEGE OF ENGINEERING  
Ramohalli Cross, Bengaluru-74





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203	ME(UG) (5 SEM)	MECHANICAL ENGINEERING	18ME51	Management and Economics	2018
204			18ME52	Design of Machine Elements I	
205			18ME53	Dynamics of Machines	
206			18ME54	Turbo Machines	
207			18ME55	Fluid Power Engineering	
208			18ME56	Operations Management	
209			18MEL57	Fluid Mechanics/Machines lab	
210			18MEL58	Energy Conversion Lab	
211	ME(UG) (6 SEM)	MECHANICAL ENGINEERING	18ME61	Finite Element Methods	2018
212			18ME62	Design of Machine Elements II	
213			18ME63	Heat Transfer	
214			18ME641	Non-Traditional Machining	
215			18ME653	Supply Chain Management	
216			18MEL66	Computer Aided Modelling and Analysis Lab	
217			18MEL67	Heat Transfer Lab	
218			18MEM68	Mini-project	
219	ME(UG) (7 SEM)	MECHANICAL ENGINEERING	17ME71	Energy Engineering	2017
220			17ME72	Fluid Power Systems	
221			17ME72	Fluid Power Systems	
222			17ME742	Tribology	
223			17ME752	Fracture Mechanics	
224			17MEL76	Design Lab	
225			17MEL77	CIM Lab	
226			17MEP78	Project Phase – I	
227	ME(UG) (8 SEM)	MECHANICAL ENGINEERING	17ME81	Operations Research	2017
228			17ME83X	Additive Manufacturing	
229			17ME832	Experimental Stress Analysis	
230			17ME85	Internship / Professional Practice	
231			17MES86	Project Phase – II	
232			17MES86	Seminar	
233	CV(UG)-III SEM	CIVIL ENGINEERING	18MAT31	Transform Calculus, Fourier Series And Numerical Techniques	2018
234			18CV32	Strength of materials	
235			18CV33	Fluid mechanics	
236			18CV34	Building Materials & Constructions	
237			18CV35	Basic surveying	
238			18CV36	Engineering Geology	
239			18CVL37	computer aided building planning and drawing	
240			18CVL38	Building Materials testing laboratory	
241			18MATDIP31	ADDITIONAL MATHEMATICS – I	
242			18KVK39/ 18KAK39	Vyavaharika Kannada / Aadalitha Kannada	

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243	CV(UG)-IV SEM	CIVIL ENGINEERING	18MAT41	Complex analysis, probability and statistical methods	2018
244			18CV42	Analysis of Determinate Structures	
245			18CV43	Applied Hydraulics	
246			18CV44	Concrete Technology	
247			18CV45	Advanced Surveying	
248			18CV46	Water supply & treatment Engineering	
249			18CVL47	Engineering Geology lab	
250			18CVL48	Fluid mechanics & Hydraulic machines Lab	
251			18MATDIP41	ADDITIONAL MATHEMATICS – II	
252			18CPH49	Constitution of India, Professional Ethics and Cyber Law	
253	CV(UG)-V SEM	CIVIL ENGINEERING	18CV51	Construction Management & Entrepreneurship	2018
254			18CV52	Analysis of Indeterminate Structures	
255			18CV53	Design of R C Structural elements	
256			18CV54	Basic Geotechnical Engineering	
257			18CV55	Municipal Wastewater Engineering	
258			18CV56	Highway Engineering	
259			18CVL57	Surveying Practice	
260			18CVL58	Concrete & Highway materials Lab	
261	CV(UG)-VI SEM	CIVIL ENGINEERING	18CV61	Design of Steel Structural elements	2018
262			18CV62	Applied Geotechnical Engineering	
263			18CV63	Hydrology & irrigation engineering	
264			18CV643	Alternate building material	
265			18CV645	Railway, Harbour, Tunnelling, Airports	
266			18CV653	Occupational Health & Safety	
267			18CVL66	Software Application Lab	
268			18CVL67	Environmental Engineering LAB	
269			18CVEP68	Extensive Survey project	
270	CV(UG)-VII SEM	CIVIL ENGINEERING	17CV71	Municipal & Industrial waste water engineering	2017
271			17CV72	Design of RCC & Steel structures	
272			17CV73	Hydrology & irrigation engineering	
273			17CV741	Design of bridges	
274			17CV753	Rehabilitation & retro fitting of structures	
275			17CVL76	Environmental Engineering LAB	
276			17CVL77	Computer aided detailing of structures LAB	
277			17CVP78	Project Phase 1	

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Ph : 080 - 28437124 / 28437375 Fax : 080 - 28437373

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www.rrce.edu.in / www.rrce.org

Principal  
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Ramohalli Cross, Bengaluru-74





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278	CV(UG)- VIII SEM	CIVIL ENGINEER ING	17CV81	Quantity surveying & contracts management	2017
279			17CV82	Design of pre stressed concrete elements	
280			17CV832	Design of hydraulic structures	
281			17CV833	Pavement design	
282			17CV84	Internship/professional practice	
283			17CVP85	Project work	
284			17CVS86	Seminar on current trends in engineering & technology	
285	ISE (UG) III SEM	Information Science & Engineering	18MAT31	Transform Calculus, Fourier Series And Numerical Techniques	2018
286			18CS32	Data Structures and Applications	
287			18CS33	Analog and Digital Electronics	
288			18CS34	Computer Organization	
289			18CS35	Software Engineering	
290			18CS36	Discrete Mathematical Structures	
291			18CSL37	Analog and Digital Electronics Laboratory	
292			18CSL38	Data Structures Laboratory	
293			18KVK39 /KAK39	Vyavaharika Kannada (Kannada for communication)/Aadalitha Kannada (Kannada for Administration)	
294	ISE (UG) IV SEM	Information Science & Engineering	18MAT41	Complex Analysis, Probability and Statistical Methods	2018
295			18CS42	Design and Analysis of Algorithms	
296			18CS43	Operating Systems	
297			18SC44	Microcontroller and Embedded Systems	
298			18CS45	Object Oriented Concepts	
299			18CS46	Data Communication	
300			18CSL47	Design and Analysis of Algorithm Laboratory	
301			18CSL48	Microcontroller and Embedded Systems Laboratory	
302			18CPC39	Constitution of India, Professional Ethics and Cyber Law	
303	ISE (UG)V SEM	Information Science & Engineering	18CS51	Management, Entrepreneurship for IT idustry	2018
304			18CS52	Computer Networks and Security	
305			18CS53	Database Management System	
306			18CS54	Automata theory and Computability	
307			18CS55	Application Development using Python	
308			18CS56	Unix Programming	
309			18CSL57	Computer Network Laboratory	
310			18CSL58	DBMS Laboratory with mini project	
311			18CIV59	Environmental Studies	

J. Adh  
Principal  
RAJARAJESWARI

Campus  
#14, Ramohalli Cross, Kumbalgodu, Mysore Road,  
Bengaluru - 560 074  
Ph : 080 - 28437124 / 28437375 Fax : 080 - 28437373  
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312	ISE (UG) VI SEM	Information Science & Engineering	18IS61	File Structures	2018
313			18IS62	Software Testing	
314			18CS63	Web Technology and its applications	
315			18CS64X	Professional Elective -1	
316			18CS65X	Open Elective -A	
317			18ISL66	Software Testing Laboratory	
318			18ISL67	File Structures Laboratory with mini project	
319			18CSMP68	Mobile Application Development	
320	ISE (UG) VII SEM	Information Science & Engineering	17CS71	Web Technology and its applications	2017
321			17IS72	Software Architecture and Design Patterns	
322			17CS73	Machine Learning	
323			17IS74x	Professional Elective 3	
324			17IS75x	Professional Elective 4	
325			17CSL76	Machine Learning Laboratory	
326			17CSL77	Web Technology Laboratory with mini projec	
327			17CSP78	Project Work Phase-I + Project work Seminar	
328	ISE (UG) VIII SEM	Information Science & Engineering	17CS81	Internet of Things and Applications	2017
329			17CS82	Big Data Analytics	
330			17IS83X	Professional Elective-5	
331			17IS84	Internship/ Professional Practice	
332			17ISP85	Project Work-II	
333			17ISS86	Seminar	
334	SCS(PG) I SEMESTER	M.Tech in Computer Science and Engineering	20SCS11	Mathematical Foundations of Computer Science	2020
335			20SCS12	Artificial Intelligence and Machine Learning	
336			20SCS13	Advanced Database Management Systems	
337			20SCS14	Advanced Algorithms	
338			20SCS15	Internet of Things and Applications	
339			20SCSL16	Algorithms and Database Management Systems Laboratory	
340	SCS(PG) II SEMESTER	M.Tech in Computer Science and Engineering	20RMI17	Research Methodology and IPR	2020
341			20SCS21	Data Science	
342			20SCS22	Semantic Web and Social Networks	
343			20SCS23	Blockchain Technology	
344			20SCS243	Cloud Computing	
345			20SCS252	Object Oriented Design	
346			20SCSL26	Data Science Laboratory	

*[Signature]*  
Principal

RAJARAJESWARI

COLLEGE OF ENGINEERING

Ramohalli Cross, Bengaluru - 77

Campus

#14, Ramohalli Cross, Kumbalgodu, Mysore Road,  
Bengaluru - 560 074

Ph : 080 - 28437124 / 28437375 Fax : 080 - 28437373

E-mail : info@rrce.org, enquiry@rrce.org

www.rrce.edu.in / www.rrce.org





# RajaRajeswari College of Engineering

(Approved by AICTE, New Delhi, Govt. of Karnataka & Affiliated to Visvesvaraya Technological University, Belgaum)

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347	SCS(PG) III SEMESTER	M.Tech in Computer Science and Engineering	20SCS31	Deep Learning	2020
348			20SCS324	Multi Core Architecture and Programming	
349			20SCS334	Wireless Sensor Networks	
350			20SCS34	Project Work phase -1	
351			20SCS35	Mini-Project	
352	SCS(PG) IV SEMESTER	M.Tech in Computer Science and Engineering	20SCS41	Project work phase 2	2020
353	MCA (PG) I SEM	MCA	20MCA11	Data Structures with Algorithms	2020
354			20MCA12	Operating System with Unix	
355			20MCA13	Computer Networks	
356			20MCA14	Mathematical Foundation for Computer Applications	
357			20MCA15	Research Methodology & IPR	
358			20MCA16	Data Structures with Algorithms Lab	
359			20MCA17	Unix Programming Lab	
360			20MCA18	Computer Networks Lab	
361			20MCA19-BC	Basics of Programming & CO	
362	MCA(PG) II SEM	MCA	20MCA21	Database Management System	2020
363			20MCA22	Object Oriented Programming with Java	
364			20MCA23	Web Technologies	
365			20MCA24	Software Engineering	
366			20MCA252	Data Mining and Business Intelligence	
367			20MCA263	Mobile Application Development	
368			20MCA27	DBMS Lab	
369			20MCA28	Java Programming Lab	
370			20MCA29	Web Technologies Lab with Mini-project	
371	MCA (PG) III SEM	MCA	20MCA31	Data Analytics using Python	2020
372			20MCA32	IoT	
373			20MCA33	Advances in Java	
374			20MCA342	Cloud Computing	
375			20MCA352	Big data Analytics	
376			20MCA36	Data Analytics Lab with Mini-project	
377			20MCA37	IoT Lab with Mini Project	
378			20MCA38	Advances in Java Lab	

*J. Reddy*  
Principal  
RAJARAJESWARI  
COLLEGE OF ENGINEERING  
Ramohalli Cross, Bengaluru-73

Campus  
#14, Ramohalli Cross, Kumbalgodu, Mysore Road.  
Bengaluru - 560 074  
Ph : 080 - 28437124 / 28437375 Fax : 080 - 28437373  
E-mail : info@rrce.org, enquiry@rrce.org

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379	MCA (PG) IV SEM	MCA	20MCA41	Advances in Web Technologies	2020
380			20MCA42	Programming using C#	
381			20MCA43	Industry Internship ( 4 weeks in vacation of 3rd sem.)	
382			20MCA44	Project work Phase 2 (During 4th Semester- min. of 4 Months)	
383	MBA(PG) I SEM	MBA	20MBA11	Management & Organizational Behaviour	2020-2021
384			20MBA12	Managerial Economics	
385			20MBA13	Accounting for Managers	
386			20MBA14	Business Statistics	
387			20MBA15	Marketing Management	
388			20MBA16	Managerial Communications	
389	MBA(PG) II SEM	MBA	20MBA21	Human Resource Management	2020-2021
390			20MBA22	Financial Management	
391			20MBA23	Research Methodology	
392			20MBA24	Operations Research	
393			20MBA25	Strategic Management	
394			20MBA26	Entrepreneurship & Legal Aspects	
395	MBA(PG) III SEM	MBA	20MBA301	Emerging Exponential Technologies	2020-2021
396			20MBA302	Technology & Operational Strategy	
397			20MBAMM303	Services Marketing	
398			20MBAMM304	Marketing Research & Analytics	
399			20MBAFM303	Investment Management	
400			20MBAFM304	Direct Taxation	
401			20MBAHR303	Recruitment & Selection	
402			20MBAHR304	Human Resource Analytics	
403			20MBAIN307	Intership	
404	MBA(PG) IV SEM	MBA	20MBAMM401	B2B Marketing Management	2020-2021
405			20MBAMM402	Logistics and Supply Chain Management	
406			20MBAMM403	Digital Marketing Management	
407			20MBAFM401	Risk Management and Insurance	
408			20MBAFM402	Financial Derivatives	
409			20MBAFM403	Indirect Taxation	
410			20MBAHR401	Organizational Leadership	
411			20MBAHR402	Personal Growth & Interpersonal Effectiveness	
412			20MBAHR403	International Human Resource Management	
413			20MBAPR407	Project Report	

*J. adf*  
Principal  
RAJARAJESWARI

COLLEGE OF ENGINEERING

Ramohalli Cross, Bengaluru-7

## Campus

#14, Ramohalli Cross, Kumbalgodu, Mysore Road,  
Bengaluru - 560 074

Ph : 080 - 28437124 / 28437375 Fax : 080 - 28437373

E-mail : info@rrce.org, enquiry@rrce.org

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414	TCE(UG) VII SEM	Telecommu nication Engineering	15EC71	MICROWAVE & ANTENNAS	2015
415			15EC72	DIGITAL IMAGE PROCESSING	
416			15EC73	POWER ELECTRONICS	
417			15EC741(PE3)	MULTIMEDIA COMMUNICATION	
418			15EC744(PE3)	CRYPTOGRAPHY	
419			15EC752(PE4)	INTERNET OF THINGS AND WIRELESS SENSOR NETWORKS	
420			15EC755(PE4)	SATELLITE COMMUNICATION	
421			15ECL76	ADVANCE COMMUNICATION LABORATORY	
422			15ECL77	VLSI LABORATORY	
423			15ECP 78	PROJECT WORK PHASE I	
424	TCE(UG) VIII SEM	Telecommu nication Engineering	15EC81	WIRELESS CELLULAR& LTE 4G BROADBAND	2015
425			15EC82	FIBER OPTICS & NETWORKS	
426			15EC833(PE 4)	RADAR ENGINEERING	
427			15EC834(PE4)	MACHINE LEARNING	
428			15EC835(PE4)	NETWORK CRPTOGRAPHY& SECURITY	
429			15ECP85	PROJECT WORK	
430			15EC84	INTERNSHIP/PROFESSIONAL PRACTICE	

*J. adf*  
Principal  
RAJARAJESWARI  
COLLEGE OF ENGINEERING  
Ramohalli Cross, Bengaluru-77

## Campus

#14, Ramohalli Cross, Kumbalgodu, Mysore Road,  
Bengaluru - 560 074

Ph : 080 - 28437124 / 28437375 Fax : 080 - 28437373

E-mail : info@rrce.org, enquiry@rrce.org

www.rrce.edu.in / www.rrce.org





# Visvesvaraya Technological University

"Jnana Sangama", Belagavi - 590 018

REGISTRAR

Phone: (0831) 2405468

Fax : (0831) 2405467

Ref. No. VTU/Aca/A6/2014-15/1379

Date: 25 MAY 2015

## CIRCULAR

This is to bring to the notice of the Principals of affiliated Engineering colleges that,

***"As per the directions of University Grants Commission, New Delhi, the Choice Based Credit System (CBCS) will be introduced for B.E./B.Tech. Programs from the academic year 2015-16. In light of this it is decided to retain 2010 syllabus to the students admitted to B.E./B.Tech. during the academic year 2014-15".***

Hence, the students who are admitted to:

- 1. FIRST Semester B.E./B.Tech. during the academic year 2014-15 will study the 2010 scheme and syllabus from III to VIII Semesters without any modification,***
- 2. THIRD Semester B.E./B.Tech. (Lateral Entry) during the academic year 2015-16 will study the 2010 scheme and syllabus from III to VIII Semesters without any modification, and***
- 3. The Question Paper Pattern (answering 5 out of 8 questions) will remain the same as that of the 2010 scheme.***

The Principals of affiliated Engineering Colleges are requested to bring the contents of this circular to the notice of all the concerned.

Sd/-

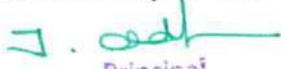
**REGISTRAR**

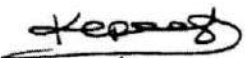
(Dr. K. E. Prakash)

To, The Principals of affiliated Engineering colleges.

Copy FWCs to:

1. The Registrar (Evaluation), VTU Belgaum, for information and needful.
2. The Special Officers of VTU Regional Offices, for information.
3. The Special Officer, Academic Section, VTU, for information.
4. The Secretary to VC, VTU Belgaum, for information.

  
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COLLEGE OF ENGINEERING  
Ramohalli Cross, Bengaluru-77


  
**REGISTRAR**  
(Dr. K. E. Prakash)



**CHOICE BASED CREDIT SYSTEM (CBCS)**  
**REGULATIONS GOVERNING**  
**THE DEGREE OF BACHELOR OF ENGINEERING / TECHNOLOGY**  
**(B.E./B.Tech.)**

**DEFINITIONS OF KEY WORDS:**

1. **University:** Visvesvaraya Technological University, Belagavi.
2. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.
3. **Semester:** Each semester will consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from August to January and even semester from February to July.
4. **Choice Based Credit System (CBCS):** The CBCS provides choice for students to select from the prescribed courses (*core, elective and Foundation Courses*).
5. **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or certificate is prescribed in terms of number of credits to be earned by the students.
6. **Programme:** An educational programme leading to award of a Degree or certificate.
7. **Course:** Usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weightage. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.
8. **Branch:** Specialization or discipline of B.E./B.Tech. Degree Programme, like Civil Engineering, Textile Engineering, etc.
9. **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters S, A, B, C, D, E and F.
10. **Grade Point:** It is a numerical weightage allotted to each letter grade on a 10-point scale.
11. **Credit:** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.
12. **Credit Point:** It is the product of grade point and number of credits for a course.
13. **Semester Grade Point Average (SGPA):** It is a measure of academic performance of student/s in a semester. It is the ratio of total credit points secured by a student in various courses registered in a semester and the total course credits

  
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RAJARAJESWARI  
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Ramohalli Cross, Bengaluru-77



taken during that semester. It shall be expressed up to two decimal places.

- 14. Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points earned by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.
- 15. First Attempt:** If a student has completed all formalities and become eligible to attend the examinations and has attended at least one head of passing, such attempt (first sitting) shall be considered as first attempt.
- 16. Transcript or Grade Card or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

**Choice Based Credit System (CBCS):** The CBCS provides choice for students to select from the prescribed courses.

Sequencing Plan for the B.E. / B.Tech. Degree Curriculum

<b>Semesters</b>	<b>Course Coverage</b>
I –II	HSS, BS and ES; Common for all Branches; Mandatory Courses
III-IV	BS Common for all Branches and ES; PS – Core/Elective
V-VII	PS- Core & Electives; Other Electives; Branch-wise Orientation
VIII	PS-Electives/Elective ; Other Electives, Internship, Project work

**Abbreviations:**

HSS - Humanities and Social Sciences

BS - Basic Sciences

ES - Engineering Sciences

PS - Professional Subjects

**Credit Structure for Course Work**

Lectures (hrs/wk /Sem)	Tutorial (hrs/wk/ Sem)	Lab. Work (hrs/wk/Sem)	Credits (Lec:instruction:Lab)	Credits (Total)
4	0	0	4:0:0	4
3	0	0	3:0:0	3
0	1	2	0:1:2	2



**CHOICE BASED CREDIT SYSTEM (CBCS)**  
**REGULATIONS GOVERNING**  
**THE DEGREE OF BACHELOR OF ENGINEERING / TECHNOLOGY**  
**(B.E./B.Tech.)**


15OB 1	<b>TITLE AND DURATION OF THE PROGRAMME OF STUDY</b>
15OB 1.1	The program of study shall be called the degree Program of study in Bachelor of Engineering / Technology, abbreviated as B.E. / B.Tech.
15OB 1.2	The program shall be of four academic years duration divided into eight semesters, each semester having duration of 16 weeks. For evening courses the contact hours are to be satisfied by working extra on afternoons of Saturdays and Sundays.
15OB 1.3	The calendar of events in respect of the program of study shall be fixed by the University from time to time.
15OB 1.4	The examination in all programs of study shall be conducted at the end of each semester for all eight semesters.
15OB 2	<b>ELIGIBILITY FOR ADMISSION</b> (The Government orders issued from time to time in this regard shall prevail).
15OB 2.1	Admission to I year / I semester Bachelor Degree in Engineering / Technology shall be open to the students who have passed the second year Pre-University or XII standard or equivalent examination recognized by the University. For the prerequisite qualification earned from foreign countries, Equivalence certificate from the Association of Indian Universities is Mandatory. The decision of the Equivalence committee shall be final in establishing the eligibility of student.
15OB 2.2	In addition to 15OB 2.1, the student shall have secured not less than forty five percent (45%) marks in the aggregate with Physics and Mathematics as compulsory subjects, along with any one of the following subjects, namely, Chemistry, Bio-Technology, Computer Science, Biology and Electronics or as decided by the Government of Karnataka. Provided that, the minimum marks for the purpose of eligibility shall be forty percent (40%) in optional subjects in case of students belonging to SC/ST and OBC students from Karnataka or as decided by the Government of Karnataka. Provided further that, the student shall have studied and passed English as one of the subjects.
15OB 2.3	Admission to II year/ III semester Bachelor Degree in Engineering/ Technology (Lateral Entry) shall be open to the students <b>Diploma Holders</b> <ul style="list-style-type: none"> <li>Must have passed diploma or equivalent qualification as recognized by University and secured not less than forty five percentage (45%) marks in the final year examination (fifth and</li> </ul>



	<p>sixth semesters) in the appropriate branch of engineering. In case of SC/ST and OBC students from Karnataka the minimum marks for eligibility shall be forty percent (40%).</p> <ul style="list-style-type: none"> <li>• Who have completed their Diploma from other than Karnataka state shall provide the Equivalence/ Eligibility Certificate from the Director of Technical Education, Karnataka.</li> <li>• Who are seeking admission under lateral entry shall also clear prescribed Bridge courses (Advanced Mathematics – III and IV) and Mandatory subjects (CPH and CIV) as specified by the University.</li> </ul> <p><b>B.Sc. Graduates</b></p> <ul style="list-style-type: none"> <li>• <b>Must have</b> passed B.Sc. degree from a recognized University as defined by the UGC or equivalent qualification as recognized by University and secured not less than forty five percentage (45%) marks in aggregate (including all six semesters). In case of SC/ST and OBC students from Karnataka the minimum marks for eligibility shall be forty percent (40%). Should have studied Mathematics as subject of study at XII Standard.</li> <li>• Further, all the B.Sc. students seeking admission to lateral entry shall also clear the following subjects before entering into V Semester <ul style="list-style-type: none"> <li>I. Computer Aided Engineering Drawing (CAED) and</li> <li>II. Programming in C and Data Structures</li> <li>III. CPH and CIV (if not studied at B.Sc. Level).</li> </ul> </li> </ul>
15OB 2.4	<p>Admission to Evening Programme of study shall be open to a student Who on the first day of the term notified by the University for the year of admission has at least one-year professional experience in the branch of engineering / technology, in which the student holds a diploma.</p> <p>Explanation: Professional experience means employment on regular basis</p> <ol style="list-style-type: none"> <li>a. in Government, Government undertaking, Public Sector undertaking, Corporations or</li> <li>b. in a private company registered under the Directorate of Industries and Commerce or the Directorate of Small Scale Industries or</li> <li>c. In Government, Government recognized institutions as technical staff.</li> </ol> <p>Provided that the period of apprenticeship undergone shall also be treated as professional experience, if sponsored by the Board of Apprenticeship Training, Southern Region Chennai or by any Government, Government undertaking or Public Sector undertaking. Provided further that employment shall be in an establishment situated within the urban agglomeration of city in which the professional institution is situated.</p>
15OB 2.5	Those students, who have passed a qualifying examination other than



	the PUC II examination of the Pre-University Education Board of Karnataka, have to obtain eligibility certificate for seeking admission to B.E./B.Tech. Degree Programme from Visvesvaraya Technological University, Belagavi or from the Principal of concerned Engineering College of Karnataka State.
15OB 3	<b>ATTENDANCE REQUIREMENT</b>
15OB 3.1	Each semester is considered as a unit and the student has to put in a minimum attendance of 85% in each Course with a provision of condonation of 10% of the attendance by the Vice-Chancellor on the specific recommendation of the Principal of the college where the student is studying, showing reasonable cause such as medical grounds, participation in University level sports, cultural activities, seminars, workshops, paper presentation, etc.
15OB 3.2	The basis for the calculation of the attendance shall be the number of hours prescribed by the University by its calendar of events. For the first semester students, the same shall be reckoned from the date of admission to the course as per CET allotment.
15OB 3.3	The students shall be informed about their attendance status periodically by the colleges so that the students shall be cautioned to make up the shortage. The Principals of the affiliated Colleges shall submit the list of students who have been detained for shortage of attendance by the end of the semester to the Registrar (Evaluation) with a copy to the Registrar. Provided that mere omission by the college to inform the student about the shortage of attendance shall not entitle him to appear for examination.
15OB 3.4	A student having shortage of attendance in one or more subjects shall have to repeat the whole semester and such students shall not be permitted to take admission to next higher semester. Such students shall take readmission to the same semester in the subsequent academic year.
15OB 3.5	<b>TEMPORARY DISCONTINUATION OF THE PROGRAM:</b> A student, who wishes to temporarily discontinue the program and continue the same subsequently, has to obtain prior permission from the University by applying through the Principal. Such students have to take readmission to the same semester/year in the subsequent academic year. However, the student shall complete the course as per 15OB 6.2.
15OB 4	<b>INTERNAL ASSESSMENT MARKS</b>
15OB 4.1	There shall be a maximum of 20 Internal Assessment Marks in each theory or practical paper. For seminars, the Internal Assessment marks shall be 50.

  
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 RAJARAJESWARI  
 COLLEGE OF ENGINEERING  
 Ramichetty Circle, Bengaluru-7



15OB 4.2	The Internal Assessment marks in a theory paper shall be based on two tests generally conducted at the end of 6 <sup>th</sup> and 12 <sup>th</sup> week of each semester. An additional test may be conducted for the desirous students before the end of the semester to give an opportunity to such students to improve their Internal Assessment Marks, subject to the provisions of 15OB 4.13. The test shall be answered in Blue Books with pages serially numbered. These blue books shall be kept in the custody of the Principal of the College until after one month from the date of announcement of the result by the University. These shall be made available to University authorities for verification as per the directions of the Registrar (Evaluation)/ Registrar.
15OB 4.3	Average of the better marks obtained from any two tests shall be the Internal Assessment Marks for the relevant subject.
15OB 4.4	If a student remains absent for all the Internal Assessment tests conducted, the Internal Assessment Marks shall be marked as AB for the subject against the University Seat Number (USN) of the student in the marks sheet submitted to the University by the Principal of the College.
15OB 4.5	In the case of a Practical, the IA marks shall be based on the laboratory journals/reports and one practical test.
15OB 4.6	The IA marks for I year Computer Aided Engineering / Drawing: a) 12 marks for class work (sketching and Computer Aided engineering drawing). b) 08 marks for test in the same pattern as that of the main examination (better of the two tests) ii) The IA marks for other Drawings and Design Drawings offered by various branches shall be based on the evaluation of the sheets and one test in the ratio 60:40.
15OB 4.7	The IA marks in the case of projects and seminars in the final year shall be based on the evaluation at the end of 8 <sup>th</sup> semester by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.
15OB 4.8	The final list, incorporating corrections (if any) of IA marks awarded to the students in the Theory/Practical/Internship/Project work/ Seminar, shall be displayed on the notice board of the college at least seven days before the closure of the semester and a certified copy of the same shall be sent by the Principals to the University Examination Section within the stipulated date. Every page of the IA marks sheet shall bear the signatures of the concerned Teacher/Teachers, Head of the Department and Principal.
15OB 4.9	Any corrections or over writing of IA marks shall bear the signature(s) of concerned Teacher(s) and in such cases the Head of the Department shall on every sheet indicate the number of corrections and attest it with his signature.



15OB 4.10 (a)	A student failing to secure a minimum of 50% of the IA marks in Practical/Internship/Project work shall not be eligible for the Practical /Internship/Project of the University examination.
15OB 4.10 (b)	For seminars, the minimum requirement of IA marks shall be 40% of the maximum.
15OB 4.11	Such students as mentioned in 15OB 4.10 shall repeat the laboratory work/Internship/project work during the subsequent semester(s) and secure at least the minimum marks prescribed.
15OB 4.12	For theory subjects, there shall not be any minimum requirements of IA marks.
15OB 4.13	Improvement of IA marks shall not be allowed a. In theory subjects and b. In Laboratory/Workshop/Seminar/ Internship / Project where the student has already secured the minimum required marks.
15OB 4.14	IA marks of those students to whom 15OB 4.11 is applicable, shall be sent separately to the Registrar (Evaluation).
15OB 4.15	IA marks shall reach the University before the commencement of examination as per the notification from the office of the Registrar (Evaluation) from time to time. After the submission of Internal Assessment marks to the University, any request for change of IA marks shall not be considered under any circumstances.
15OB 5	<b>ELIGIBILITY FOR PASSING</b> A student who obtained Grades O to E shall be considered as passed and if a student secured "F" grade in any of the head of passing he /she has to reappear for the examination.
15OB 5.1 (a)	For a pass in a theory subject/drawing, the student shall secure minimum of 35% of the maximum marks prescribed in the University examination and 40% of marks in the aggregate inclusive of the IA marks. i.e. Minimum Passing Grade is "E".
15OB 5.1 (b)	For a pass in a Practical/Internship/Project/Viva-voce examination, a student shall secure a minimum of 40% of the maximum marks prescribed for the University Examination in the relevant Practical/Internship/Project/Viva-voce. i.e. Minimum Passing Grade in a course is "E".
15OB 5.1 (c)	For a pass in Seminar, a student shall secure a minimum of 40% of the maximum marks prescribed. i.e. Minimum Passing Grade is "E".
15OB 5.2	The students who do not satisfy the condition 15OB 5.1 and the student who remains absent shall be deemed to have failed in that subject and may reappear for the University examination in the subsequent examinations. However, the IA marks awarded to the student/s at first attempt in the concerned theory subject will be carried forward. In case of Practical/Internship/Projects/Seminar revised marks will be taken as per regulations 15OB 4.10 (a & b) and 15OB 4.11.
15OB 5.3	The student who passes a course of a semester as per 15OB 5.1 shall

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	not be allowed to appear for the same again, unless he/she opts for rejection of results as per 15OB 5.4, 5.5, 5.6, 5.7 & 5.8.
OB 5.4	A student may, at his/her desire, reject his/her total performance of a semester (including IA marks) or he/she may reject the result of his/her performance in University examination of a semester only. The rejection is permitted only once during the entire course of study.
15OB 5.5	The student who desires to reject the performance as per 15OB 5.4 shall reject performance in all the courses of the semester, irrespective of whether the student has passed or failed in any subject. However, the rejection of performance of 8 <sup>th</sup> semester project result shall not be permitted.
15OB 5.6	A student, who desires to reject the total performance of the semester including Internal Assessment, has to take readmission for the relevant semester. Application for such readmission shall be sent to the Registrar through the Principal of College within 30 days from the date of the announcement of the results. Late submission of application shall not be accepted for any reasons. Readmission to First semester in such cases shall not be considered as fresh admission i.e., the student will continue to have the same University Seat Number, which was allotted earlier. The course duration permitted (as per 15OB 6) will be counted as per old USN.
OB 5.7	The student, who desires to reject only the results of University examination of a semester and does not desire readmission, shall be permitted to re-appear for examinations of all the subjects of the semester in the subsequent examinations. However, the IA marks obtained by the student in the rejected semester shall be retained. Applications for such rejection shall be sent to the Registrar (Evaluation) through the Principal of the College within 30 days from the date of announcement of the results. Late submission of applications shall not be accepted for any reasons. If the rejection of the University examination results of the semester happens to be of the odd semester, the student shall be allowed to take admission to the immediate next even semester. However, if the rejection of the University result is of the even semester, the student shall not be allowed to take admission to the next odd semester (as per 15OB 7.2).
15OB 5.8	Such students who opt for rejection at final year are eligible for the award of class and distinction at the B.E./ B.Tech. degree level, but are not eligible for the award of ranks.
15OB 5.9	A student shall be declared to have completed the program of B.E. / B.Tech., degree, provided the student has undergone the stipulated course work as per the regulations and has earned at least 200 Credits.
15OB 6	<b>MAXIMUM DURATION FOR COURSE COMPLETION</b>
15OB 6.1	A student who has not obtained the eligibility for third semester after a



	period of three academic years from the date of first admission shall discontinue the course. However, the student is eligible for readmission for first year B.E./B.Tech. in respective College of the University and he/ she shall be allotted a University Seat Number (USN) without any change in the year of admission in the USN but the serial number of the student shall start with six hundred (6XX) series in the same branch.
15OB 6.2	The student admitted to 1 <sup>st</sup> year B.E/ B.Tech. shall complete the course within a period of eight academic years from the date of first admission, failing which he/she has to discontinue the course. The students admitted under lateral entry scheme (2nd Year B.E./B.Tech.) shall complete the course within a period of six academic years from the date of first admission, failing which he/she has to discontinue the course.
15OB 7	<b>PROMOTION AND ELIGIBILITY FOR THE EXAMINATIONS</b>
15OB 7.1	There shall not be any restriction for promotion from an odd semester to the next even semester, provided the student has fulfilled the attendance requirement.
15OB 7.2	A student shall be eligible for promotion from an even semester to the next odd semester (i.e. of the next academic year) if the student has not failed in more than four heads of passing of the immediately preceding two semesters and has passed in all the subjects of all the lower semester examinations. A theory or practical shall be treated as a head of passing. <b>Illustrations</b> a. A student seeking eligibility to 3 <sup>rd</sup> semester should not have failed in more than 4 heads of passing of first and second semesters taken together. b. A student seeking eligibility to 5 <sup>th</sup> semester should have passed in all the subjects of 1 <sup>st</sup> and 2 <sup>nd</sup> semesters and should not have failed in more than 4 heads of passing of third and fourth semesters taken together. c. A student seeking eligibility to 7 <sup>th</sup> semester should have passed in all the subjects up to 4 <sup>th</sup> semester and should not have failed in more than 4 heads of passing of 5 <sup>th</sup> and 6 <sup>th</sup> semesters taken together.  <b>The Subjects:</b> 1. Constitution of India, Professional Ethics and Human Rights, and 2. Environmental Studies are Mandatory Non-Credit Courses; these subjects shall not be considered for the Eligibility for promotion, award of Class, calculation of SGPA and CGPA. However, a pass in the above subjects is mandatory before the completion of Degree.
15OB 8	<b>COURSES</b>




15OB 8.1	<p>There will be Four types of courses</p> <p><b>(i) Core Courses:</b> This is the course which is to be compulsorily studied by a student as a core requirement to complete the requirements of a program in a said discipline of study. These courses will have 4 credits per course.</p> <p><b>(ii) Foundation Courses:</b> The Foundation Courses are of two kinds: <i>Compulsory Foundation</i> and <i>Elective foundation</i>.</p> <p>“Compulsory Foundation”: These courses are the courses based upon the content that leads to Knowledge enhancement. They are mandatory for all disciplines. These courses will have 4 credits per course.</p> <p>“Foundation Electives”: These are value based courses aimed at man making education. These courses will have 3 credits per course.</p> <p><b>(iii) Elective Courses:</b> This is course, which can be chosen from the pool of papers. It may be supportive to the discipline/ providing extended scope/enabling an exposure to some other discipline / domain / nurturing student proficiency skills. These courses will have 3 credits per course.</p> <p><b>(iv) Mandatory Non-Credit Courses:</b> These courses are mandatory for students joining B.E./B.Tech. Program and students have to successfully complete these courses before the completion of degree.</p>
15OB 8.2	The minimum number of students to be registered for an Elective to be offered shall be not less than ten.
15OB 8.3	A student shall exercise his option in respect of the electives and register for the same at the beginning of the concerned semester. The student may be permitted to opt for change of elective subject within 15 days from the date of commencement of the semester as per the calendar of the University.
15OB 9	<b>INTERNSHIP</b>
15OB 9.1	<p><b>Internship:</b> The student shall undergo an Internship for 8 weeks i.e. starting from the end of 7<sup>th</sup> semester Examination after availing one week vacation and completing during the initial period of 8<sup>th</sup> semester.</p> <ol style="list-style-type: none"> <li>1. The college shall nominate a faculty for a group of students to prepare the students for internship.</li> <li>2. The students shall report the progress of the internship to the guide in regular intervals and may seek his/her advise.</li> <li>3. The Internship shall be completed between 7<sup>th</sup> and 8<sup>th</sup> semesters.</li> <li>4. After completion of 7<sup>th</sup> semester Theory and Practical examinations, the students shall have one week vacation.</li> <li>5. Immediately after availing one week vacation, the students shall undergo internship (without waiting for the results) which may be a period of 4/5 weeks.</li> </ol>

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6. The remaining period of internship; i.e. 4/3 weeks shall be completed during the initial period of the 8<sup>th</sup> semester.
7. After completion of Internship, students shall submit a report to the college with the approval of both internal and external guides.
8. There will be 50 IA and 50 External marks for Internship.
9. The guide shall be the internal examiner and IA marks out of 50 are to be awarded by the internal guide after evaluating the Internship Report submitted by the student.
10. Viva-Voce on internship shall be conducted at the college and the date of Viva-Voce shall be fixed in consultation with the external Guide.
11. Viva-Voce on internship shall be conducted by both internal and external guides and jointly evaluate the internship report for 50 marks. The expenses of external guide are to be borne by the student/college.
12. In case of the non availability of external guide for the conduct of viva-voce, the Principal shall appoint a senior faculty of the department to conduct viva-voce along with the internal guide, and they jointly evaluate the internship report for 50 marks.
13. The students are permitted to carry out the internship outside India with the following conditions:
  - a. The entire expenses are to be borne by the student or college and the University will not give any financial assistance.
  - b. The Internal Guide has to visit at least once during the student's internship; the expenses of the visit are to borne by the student/college.
  - c. The external guide from the industry has to be an examiner for the viva voce on Internship, and the expenses are to be borne by the student/ college.
  - d. The University will not provide any kind of Financial Assistance to any student for internship and for the conduct of Viva-Voce on internship.

  
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15OB9.2	<b>Report on Internship:</b> The College shall facilitate and monitor the student internship program. The internship report of each student shall be submitted to the Head of the Department of the college with the approval of the Guide.																											
15OB9.3	<b>Failing to undergo Internship:</b> Completion of internship is mandatory; if any student fails to complete internship, he/she will not be eligible for the award of degree.																											
15OB9.4	<b>Non-completion of Internship:</b> In such cases, the student has to redo the internship.																											
15OB 10	<b>SEMINAR AND PROJECT</b>																											
15OB 10.1	Seminar topic shall be selected from the emerging technical areas only.																											
15OB 10.2	Project work at 8 <sup>th</sup> semester shall be completed batch wise, each batch consisting of minimum of two students and maximum four students.																											
15OB 10.3	Viva-voce examination in project work shall be conducted batch-wise.																											
15OB 11	<b>COMPUTATION OF SGPA AND CGPA</b>																											
	<p>i. The VTU adopts absolute grading system wherein the marks are converted to grades, and every semester results will be declared with semester grade point average (SGPA) and Cumulative Grade Point Average (CGPA). The CGPA will be calculated every semester, except the first semester.</p> <p>ii. The grading system is with the following letter grades as given below:</p> <p><b>Grades and Grade Points</b></p> <table border="1"> <tr> <th>Level</th><th>Out-standing</th><th>Excellent</th><th>Very Good</th><th>Good</th><th>Above Average</th><th>Average</th><th>Poor</th><th>Fail</th></tr> <tr> <td><b>Letter Grade</b></td><td><b>O</b></td><td><b>S</b></td><td><b>A</b></td><td><b>B</b></td><td><b>C</b></td><td><b>D</b></td><td><b>E</b></td><td><b>F</b></td></tr> <tr> <td><b>Grade Points</b></td><td><b>10</b></td><td><b>9</b></td><td><b>8</b></td><td><b>7</b></td><td><b>6</b></td><td><b>5</b></td><td><b>4</b></td><td><b>00</b></td></tr> </table> <p>iii. A student obtaining Grade "F" shall be considered failed and will be required to reappear in the examination. Such students after passing the failed subject in subsequent examination/s will be awarded with "E" grade irrespective of marks he/she scores in the subsequent examination/s. Number of attempts taken to clear a subject/s shall be shown in the transcripts.</p>	Level	Out-standing	Excellent	Very Good	Good	Above Average	Average	Poor	Fail	<b>Letter Grade</b>	<b>O</b>	<b>S</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>Grade Points</b>	<b>10</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>4</b>	<b>00</b>
Level	Out-standing	Excellent	Very Good	Good	Above Average	Average	Poor	Fail																				
<b>Letter Grade</b>	<b>O</b>	<b>S</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>																				
<b>Grade Points</b>	<b>10</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>4</b>	<b>00</b>																				



### Grade Points Scale

Level	Out-standing	Excellent	Very Good	Good	Above Average	Average	Poor	Fail
Letter Grade	O	S	A	B	C	D	E	F
Grade Points	10	9	8	7	6	5	4	00
Score (Marks) Range (%)	≥ 90	<90	< 80 ≥70	< 70 ≥60	< 60 ≥50	< 50 ≥45	<45 ≥40	< 40

### Computation of SGPA and CGPA

The following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

- i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$\text{SGPA (Si)} = \sum(C_i \times G_i) / \sum C_i$$

where  $C_i$  is the number of credits of the  $i^{\text{th}}$  course and  $G_i$  is the grade point scored by the student in the  $i^{\text{th}}$  course.

- ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\text{CGPA} = \sum(C_i \times S_i) / \sum C_i$$

where  $S_i$  is the SGPA of the  $i^{\text{th}}$  semester and  $C_i$  is the total number of credits in that semester.

- iii. The SGPA and CGPA shall be rounded off to 2 decimal places and reported in the transcripts.



### Illustration for Computation of SGPA and CGPA

#### Computation of SGPA

##### Illustration No.1

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	4	A	8	4x8 = 32
Course 2	4	C	6	4x6 = 24
Course 3	4	B	7	4x7 = 28
Course 4	3	O	10	3x10= 30
Course 5	3	D	4	3x4 = 12
Course 6	3	C	6	3x6 = 18
Course 7	2	S	9	2x9 = 18
Course 8	2	C	6	2x6 = 12
	25			174

Thus, **SGPA= 174/25=6.96**

##### Illustration No.2

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	4	A	8	4x8 = 32
Course 2	4	C	6	4x6 = 24
Course 3	4	B	7	4x7 = 28
Course 4	3	O	10	3x10= 30
Course 5	3	F	0	3x0 = 00
Course 6	3	C	6	3x6 = 18
Course 7	2	S	9	2x9 = 18
Course 8	2	C	6	2x6 = 12
	25			162

Thus, **SGPA= 162/25=6.48**

##### Illustration No.2(a)

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 5	3	E	4	3x4 =12
	25			Ci (First Attempt)162 + Ci (subsequent attempt) 12= 174

Thus, **SGPA= 174/25=6.96**

##### Illustration No.3

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	4	A	8	4x8 =32
Course 2	4	C	6	4x6 =24



Course 3	4	B	7	4x7 =28
Course 4	3	O	10	3x10=30
Course 5	3	S	9	3x9 =27
Course 6	3	C	6	3x6 =18
Course 7	2	S	9	2x9 =18
Course 8	2	C	6	2x6 =12
	25			189

Thus, **SGPA= 189/25=7.56**

$$CGPA = \frac{25 \times 6.96 + 25 \times 7.56}{50} = 7.26$$

**CGPA after Final Semester**

Sem. - 1	Sem. - 2	Sem. - 3	Sem. - 4	Sem. - 5	Sem. - 6	Sem. - 7	Sem. - 8
Credit : 24 SGPA:7	Credit:24 SGPA:8.5	Credit : 27 SGPA:9.2	Credit : 27 SGPA:6.86	Credit :24 SGPA:8.18	Credit : 24 SGPA:7.73	Credit : 24 SGPA:8.68	Credit : 26 SGPA:9.4

Thus, **CGPA=  $\frac{24 \times 7 + 24 \times 8.5 + 27 \times 9.2 + 27 \times 6.86 + 24 \times 8.18 + 24 \times 7.73 + 24 \times 8.68 + 26 \times 9.4}{200} = 8.2$**

**Transcript (Format):** Based on the above recommendations on Letter grades, grade points, SGPA and CCPA, the transcript for each semester and a consolidated transcript indicating the performance in all semesters may be issued.

15OB 12	<p><b>CONVERSION OF GRADES INTO PERCENTAGE:</b></p> <p>Conversion formula for the conversion of GPA into Percentage is [CGPA Earned - 0.75] x 10= Percentage of marks scored.</p> <p><b>Illustration:</b> [CGPA Earned 8.2 - 0.75]x 10 = 74.5%</p>
15OB 13	<b>AWARD OF PRIZES, MEDALS &amp; RANKS</b>
15OB 13.1	For the award of Prizes and Medals, the conditions stipulated by the Donor may be considered subject to the provisions of the statutes framed by the University for such awards.
15OB 13.2	<p>For award of ranks in a branch, a minimum of 10 students should have appeared in the 8<sup>th</sup> semester examination. The total number of ranks awarded shall be 10% of total number of students appeared in 8<sup>th</sup> semester or 10 students, whichever is less in that branch.</p> <p>Illustration:</p> <ol style="list-style-type: none"> <li>If 1028 students appeared for the 8<sup>th</sup> semester in Electronics and Communication Engineering Branch, the number of ranks to be awarded for Electronics and Communication Engineering will 10.</li> <li>If 90 students appeared for the 8<sup>th</sup> semester in Biomedical Engineering Branch, the number of ranks to be awarded for Biomedical Engineering will be 09.</li> </ol>
15OB 13.3	<p>For award of rank in a branch of Engineering / Technology, the CGPA secured by the student from</p> <ol style="list-style-type: none"> <li>1<sup>st</sup> to 8<sup>th</sup> semester for the students admitted to B.E./B.Tech. Program from 1<sup>st</sup> year, and</li> </ol>



	<p>b) 3<sup>rd</sup> to 8<sup>th</sup> semester for the students admitted to B.E./B.Tech. Program from 2<sup>nd</sup> year (Lateral Entry) shall be considered.</p> <p>A student shall be eligible for a rank at the time of award of degree in each branch of Engineering / Technology, provided the student</p> <p>a. Has passed 1<sup>st</sup> to 8<sup>th</sup> (students joining from 1<sup>st</sup> semester) or 3<sup>rd</sup> to 8<sup>th</sup> (in case of lateral entry) semester in all the subjects in first attempt only</p> <p>b. Has not repeated/rejected any of the lower semesters.</p>
15OB 13.4	<p>If two students get the same CGPA, the tie should be resolved by considering the number of times a student has obtained higher SGPA; but, if it is not resolved even at this stage, the number of times a student has obtained higher grades like O, S, A, B etc shall be taken into account in rank ordering of the students in a program.</p>
15OB 14	<b>TRANSFER OF STUDENTS</b>
15OB14.1	<p>Transfer of students from one college to another college within Karnataka state shall be permitted only at the beginning of third, fifth, and seventh semesters, subject to availability of seats within the permitted intake in respective Colleges and subject to the prior approval of the University and the provisions of 15OB 7.2.</p> <p>In the case of students from Universities other than VTU the students should have passed in all the courses of 1<sup>st</sup> &amp; 2<sup>nd</sup> semesters for admission to 3<sup>rd</sup> semester and all the courses of 1<sup>st</sup> to 4<sup>th</sup> semesters for admission to 5<sup>th</sup> semester and all the courses of 1<sup>st</sup> to 6<sup>th</sup> semesters for admission to 7<sup>th</sup> semester.</p> <p>The students seeking admission from Universities other than VTU shall have to</p> <p>a. apply for establishment of equivalence with prescribed fees as notified by the VTU and</p> <p>b. Obtain No Objection for admission from the university before commencement of term as notified by VTU.</p>
15OB14.2	<p>Transfer of students within the College from one branch to another branch at 3<sup>rd</sup> semester shall be permitted with the prior approval of the VTU and subject to the provisions made by the Government of Karnataka and AICTE in this behalf.</p>
15OB14.3	<p>The University may prescribe fee for administrative purpose (for updating of the records), which shall be notified from time to time, for transfer from one college to another (Change of College) or one branch to another branch (change of branch within the college).</p>

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**NOTE:** These regulations governing the Degree of Bachelor of Engineering/Technology of Visvesvaraya Technological University shall be binding on all and may be modified from time to time.

*J. adh*

Principal  
RAJARAJESWARI  
COLLEGE OF ENGINEERING  
Bam-bali Cross, Bangalore-70