



**DEPARTMENT  
OF  
ELECTRONICS & COMMUNICATION ENGINEERING  
SCHEME OF EVALUTION  
& SYLLABUS of UG B.E. COURSE  
I Semester – Jul 2018 to Dec 2018  
(Odd Sem)  
Autonomous Course  
Batch : 2018-22**



**Dayananda Sagar College of Engineering**

Shavige Malleshwara Hills, Kumaraswamy Layout,

Banashankari, Bangalore-560078, Karnataka

Tel : +91 80 26662226 26661104 Extn : 2731 Fax : +90 80 2666 0789

Web - <http://www.dayanandasagar.edu> Email : [hod-ece@dayanandasagar.edu](mailto:hod-ece@dayanandasagar.edu)

( An Autonomous Institute Affiliated to VTU, Approved by AICTE & ISO 9001:2008 Certified )  
( Accredited by NBA, National Assessment & Accreditation Council (NAAC) with 'A' grade )

## **About the college & the department**

The Dayananda Sagar College of Engineering was established in 1979, was founded by Sri R. Dayananda Sagar and is run by the Mahatma Gandhi Vidya Peetha Trust (MGVP). The college offers undergraduate, post-graduates and doctoral programmes under Visvesvaraya Technological University & is currently autonomous institution. MGVP Trust is an educational trust and was promoted by Late. Shri. R. Dayananda Sagar in 1960. The Trust manages 28 educational institutions in the name of “Dayananda Sagar Institutions” (DSI) and multi – Specialty hospitals in the name of Sagar Hospitals - Bangalore, India. Dayananda Sagar College of Engineering is approved by All India Council for Technical Education (AICTE), Govt. of India and affiliated to Visvesvaraya Technological University. It has widest choice of engineering branches having 16 Under Graduate courses & 17 Post Graduate courses. In addition, it has 21 Research Centres in different branches of Engineering catering to research scholars for obtaining Ph.D under VTU. Various courses are accredited by NBA & the college has a NAAC with ISO certification. One of the vibrant & oldest dept is the ECE dept. & is the biggest in the DSI group with 70 staffs & 1200+ students with 10 Ph.D.’s & 30+ staffs pursuing their research in various universities. At present, the department runs a UG course (BE) with an intake of 240 & 2 PG courses (M.Tech.), viz., VLSI Design Embedded Systems & Digital Electronics & Communications with an intake of 18 students each. The department has got an excellent infrastructure of 10 sophisticated labs & dozen class room, R & D centre, etc...

### **Vision & Mission of the Institute**

#### **Vision of the Institute**

- To impart quality technical education with a focus on Research and Innovation emphasizing on Development of Sustainable and Inclusive Technology for the benefit of society.

#### **Mission of the Institute**

- To provide an environment that enhances creativity and Innovation in pursuit of Excellence.
- To nurture teamwork in order to transform individuals as responsible leaders and entrepreneurs.
- To train the students to the changing technical scenario and make them to understand the importance of Sustainable and Inclusive technologies.

## **Vision & Mission of the Department**

### **Vision of the department**

- To prepare the students for global competence, with core knowledge in Electronics and Communication Engineering having focus on research to meet the needs of industry and society.

### **Mission of the department**

- To provide in-depth knowledge of Electronics and Communication Engineering, ensuring the effective teaching learning process.
- To train students to take-up innovative projects in group with emerging technology relevant to the industry and social needs.
- To imbibe professional ethics, research culture and development of skills.

## **Program Education Objectives**

**PEO1 :** have Core knowledge of Electronics and Communication Engineering due to strong TLP (teaching learning process) with readiness to apply the state-of-art technology.

**PEO2 :** engage in team work with technical knowledge and effective communication skills to address the practical issues in industry and society.

**PEO3 :** be technologists who can analyze and design innovative projects through research and emerging technology.

**PEO4 :** Professionals, with capabilities for pursuing higher studies in technical/managerial courses.

## **Program Specific Outcomes**

**PSO-1:** Design and develop embedded system (Microcontroller, DSP, FPGA based) applications, related to industry, social and Environmental Problems.

**PSO-2:** To design various types of electronic systems for applications in signal processing and communication.

## BASIC ELECTRONICS

Course Code: 18EC1ICBEE

L: P : T : S : 3 : 0 : 0 : 0

Exam Hours: 03

Total Hours: 40

Credits: 03

CIE Marks : 50

SEE Marks: 50

Total Marks: CIE + SEE = 100

### Course Objectives:

To impart knowledge on

1. Digital concepts and number systems.
2. Basics of Electronic devices.
3. Principle of OP AMP
4. Fundamentals of communication systems.
5. Applications of electronics.

### Course Outcomes:

After completion of the course, the graduates will be able to

CO1	Identify the electronic devices and their significance in different applications.
CO2	Understand the fundamental concepts and the operation of transistor and op-amps.
CO3	Compile the different building blocks in digital electronics using logic gates and implement simple logic function using basic gates
CO4	Analyze the basic principles of different types of MOSFETS and Flip flops
CO5	Understand the functioning of a communication system, and different modulation techniques
CO6	Design and develop simple electronic projects

### Mapping of Course outcomes to Program outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	1	-	-	-	-	-	-	-	-	-
CO2	3	1	2	-	-	-	-	-	-	-	-	-
CO3	3	3	3	2	-	-	-	-	-	-	-	-
CO4	3	1	2	-	-	-	-	-	-	-	-	-
CO5	3	3	1	-	-	-	-	-	-	-	-	-
CO6	3	3	3	2	-	-	-	-	-	-	-	-

Unit	Contents	Hours	COs
1	<p><b>Digital Electronics 1 :</b> Introduction to Number Systems, Binary Number System, Decimal Number System, Octal Number System, Hexadecimal Number System. Conversion from one number system to another number system, 1's and 2's complement method and their arithmetic.</p> <p><b>Digital Electronics 2 :</b> Binary logic functions, Boolean algebra, De-Morgan's Theorem, Logic gates, Realization of Boolean functions using basic gates, Implementation of logic gates as half &amp; full adder.</p>	8	CO1 CO4
2	<p><b>Bipolar Junction Transistors:</b> Construction, working &amp; operation principle of a BJT, Common Base, Common Emitter and Common Collector Characteristics, Numerical examples.</p> <p><b>Field Effect Transistor (FET) –</b> Construction, Operation, Transfer Characteristics, p-channel FET-construction, operation and drain characteristics, Depletion and Enhancement type Metal Oxide Semiconductor (MOSFET).</p>	8	CO2 CO4
3	<p><b>Operational Amplifiers :</b> Introduction, Block diagram representation of OPAMP , Schematic symbol and pin configuration,, Ideal and Practical Characteristics of OPAMP, Virtual ground concepts,</p> <p><b>OPAMP applications:</b> Inverting and Non Inverting amplifiers, Voltage Follower, Summer, Numericals</p>	8	CO2 CO4
4	<p><b>Communication Systems 1 :</b> Introduction, Elements of Communication Systems, Concept of modulation, methods of modulation - principles of AM, FM, pulse analog and pulse digital modulation – AM / FM transmitters &amp; receivers (block diagram description only)</p> <p><b>Communication Systems 2:</b> Block diagram and Principle of Optical Fiber Communication, Advantages and Applications of Optical Fiber communication.</p>	8	CO2 CO3 CO4
5	<p><b>Applications of Electronics:</b> Principle of operation of Mobile phone, GSM architecture, Anti-Lock Braking System (ABS): Introduction and block diagram, Internet Of Things: Introduction, Application : Smart Home Automation system, 7805 IC voltage regulator.</p>	8	CO3 CO4

**Note:**

1. Questions for CIE and SEE not to be set from self-study component.
2. Assignment Questions should be from self-study component only.

**Pre-requisites:** Engineering Mathematics, Fundamentals of Electronics (studied @ X, XI, XII level)

**Self Study Component:**

Unit-1: Digital – Analog basic concepts, Universal gates

Unit-2: Voltage divider biasing, working of SCR and UJT.

Unit-3: Applications of OPAMP- Subtractor, Differentiator, Integrator

Unit-4: Derivation of amplitude modulation, frequency modulation

Unit-5: Cloud computing, 7808 IC voltage regulator.

**Text Books:**

1. David A. Bell, “Electronic Devices and Circuits”, Oxford University Press, 5<sup>th</sup> Edition, 2008.
2. D.P. Kothari, I. J. Nagarith, “Basic Electronics”, 2nd edn, Mc Graw Hill, 2018
3. V.K. Mehta, “Fundamentals of Electronic Devices & Circuits”, S. Chand & Company, New Delhi, India.
4. George Kennedy, Electronic Communication Systems, TMH, 4<sup>th</sup> Edition.

**Reference Text Books:**

1. Robert Boylested and Louis Nashelsky, “Electronic Devices and Circuit Theory”, Pearson Education, 9<sup>th</sup> Edition, 2007.
2. Thomas Floyd, “Electronic Devices”, Prentice Hall of India, New Delhi 2009.
3. Charles H. Roth, Jr; “Fundamentals of Logic Design”, Thomson Learning, 2004.
4. U.B. Mahadeva Swamy, “A simplified approach to Basic Electronics”, Sanguine Technical Publications, Bengaluru, 2015.

**Web References:**

1. <http://www.rfwireless-world.com>
2. [https://en.wikipedia.org/wiki/Anti-lock\\_braking\\_system](https://en.wikipedia.org/wiki/Anti-lock_braking_system)
3. [https://en.wikipedia.org/wiki/Internet\\_of\\_things](https://en.wikipedia.org/wiki/Internet_of_things)
4. <http://www.synergy.ac.in>

**Project based Learning:**

One mini electronic oriented project in a semester, which are practically useful to the institution & to the society, based on the above modules 1 to 5, students to form batch (or may be single) & execute the mini-project (either at hardware level or software level or both) along with the project report submission, a demo, a presentation & a viva-voce along with a paper presentation.

**Scheme of Evaluation:**

Internal Assessment Test (IAT- 1) 50 marks reduced to 30	----- 30 M
Internal Assessment Test (IAT- 2) 50 marks reduced to 30	----- 30 M
CIE-1 (Quiz)	----- 05 M
CIE-2 (Quiz)	----- 05 M
Assignment & AAT-2 Activity	----- 15 M
Project based learning - Mini Projects, Report writing, Developing Products, Building Models, Paper Presentation using modern tools (to be undertaken for a period of 15 weeks)	
Continuous Internal Evaluation (CIE) Total	----- 50 M

**Assessment Pattern:****CIE – Continuous Internal Evaluation Theory (50 Marks)**

<b>Bloom's Category</b>	<b>Tests</b>	<b>Assignments</b>	<b>AAT1</b>	<b>AAT2</b>
Marks (Out of 50)	30		05	15
Remember	10		01	
Understand	10		01	
Apply	10		02	
Analyze			01	05
Evaluate				05
Create				05

**AAT 1 - Alternate Assessment Tool 1: Quiz**

**AAT 2 - Alternate Assessment Tool 2:** Surprise Test, Seminar, Role Play, Group Discussion, Case Study, E-Course Certification, Mini Projects / Developing Products / Building, Models, Paper Presentation, Paper / Poster Publication, Programming Contest, General Science / Technical Quiz/Hackathons / Demonstration / analysis / optimization / comparison of theoretical concepts using modern tools.

**SEE –Semester End Examination Theory (50 Marks)**

<b>Bloom's Category</b>	<b>Marks Theory (50)</b>
Remember	10
Understand	20
Apply	5
Analyze	5
Evaluate	5
Create	5



# DAYANANDA SAGAR COLLEGE OF ENGINEERING

Accredited by National Assessment & Accreditation Council (NAAC) with 'A' Grade

(An Autonomous Institute Affiliated to VTU, Belagavi)

Shavige Malleshwara Hills, Kumaraswamy Layout, Bengaluru-560078

## SCHEME 2017-18

### I SEMESTER B.E

(Common to all branches)

### PHYSICS GROUP

Sl. No.	Course Code	Course	Course Type	Teaching Department	Board	Hours/week			Total Credits
						L	P	T/I	
1	17MA1ICMAT	Engineering Maths-I	BS	Maths	BS	4	0	0	4
2	17PH1ICPHY	Engineering Physics	BS	PHY	BS	4	0	0	4
3	17PH1ILPHY	Engineering Physics Lab	BS	PHY	BS	0	2	1	2
4	17CV1ICECV	Elements of Civil Engg. & Engineering Mechanics	EC	Civil	Civil	4	0	0	4
5	17ME1ICEME	Elements of Mechanical Engg	EC	ME	Mech	3	0	0	3
6	17ME1ILWSP	Workshop Practice	EC	ME	Mech	0	2	1	2
7	17EE1ICBEE	Basic Electrical Engg.	EC	EEE	EEE	4	0	0	4
8	17HS1ICCIP	Constitution of India and Professional Ethics	HSS	HSS	HSS	2	0	0	2
9	17HS1IMKAN	Kannada Language*	HSS	HSS	HSS	2	-	-	Pass Grade
									25

BS: Basic Science, EC: Engineering Core, HSS: Humanities and Social Sciences, 1hour Lecture (L) = 1 credit, 2hours Practical=1credit, 2 hours Tutorial (T) =1 credit, 1 hour Instruction (I) =1 credit.

Students should pass \*Mandatory Audit course (non credit) before the completion of IV Semester.





# DAYANANDA SAGAR COLLEGE OF ENGINEERING

Accredited by National Assessment & Accreditation Council (NAAC) with 'A' Grade

(An Autonomous Institute Affiliated to VTU, Belagavi)

Shavige Malleshwara Hills, Kumaraswamy Layout, Bengaluru-560078

## SCHEME 2017-18

### II SEMESTER B.E

(Common to all branches)

### PHYSICS GROUP

Sl. No.	Course Code	Course	Course Type	Teaching Department	Board	Hours/week			Total Credits
						L	P	T/I	
1	17MA2ICMAT	Engineering Maths-I	BS	Maths	BS	4	0	0	4
2	17PH2ICPHY	Engineering Physics	BS	PHY	BS	4	0	0	4
3	17PH2ILPHY	Engineering Physics Lab	BS	PHY	BS	0	2	1	2
4	17CV2ICECV	Elements of Civil Engg. & Engineering Mechanics	EC	Civil	Civil	4	0	0	4
5	17ME2ICEME	Elements of Mechanical Engg	EC	ME	Mech	3	0	0	3
6	17ME2ILWSP	Workshop Practice	EC	ME	Mech	0	2	1	2
7	17EE2ICBEE	Basic Electrical Engg.	EC	EEE	EEE	4	0	0	4
8	17HS2ICCIP	Constitution of India and Professional Ethics	HSS	HSS	HSS	2	0	0	2
9	17HS2IMKAN	Kannada Language*	HSS	HSS	HSS	2	-	-	Pass Grade
									25

BS: Basic Science, EC: Engineering Core, HSS: Humanities and Social Sciences, 1hour Lecture (L) = 1 credit, 2hours Practical=1credit, 2 hours Tutorial (T) =1 credit, 1 hour Instruction (I) =1 credit.

Students should pass \*Mandatory Audit course (non credit) before the completion of IV Semester.



# DAYANANDA SAGAR COLLEGE OF ENGINEERING

Accredited by National Assessment & Accreditation Council (NAAC) with 'A' Grade

(An Autonomous Institute Affiliated to VTU, Belagavi)

Shavige Malleshwara Hills, Kumaraswamy Layout, Bengaluru-560078

## SCHEME 2017-18

### I SEMESTER B.E

(Common to all branches)

### CHEMISTRY GROUP

Sl. No.	Course Code	Course	Course Type	Teaching Department	Board	Hours/week			Total Credits
						L	P	T/I	
1	17MA1ICMAT	Engineering Maths-I	BS	Maths	BS	4	0	0	4
2	17CH1ICCHY	Engineering Chemistry	BS	CHY	BS	4	0	0	4
3	17CH1ILCHY	Engineering Chemistry Lab	BS	CHY	BS	0	2	1	2
4	17CS1ICPIC	Programming in C	EC	CSE	CSE	3	0	0	3
5	17CS1ILPIC	Computer Programming Lab	EC	CSE	CSE	0	2	1	2
6	17ME1ICCED	Computer Aided Engineering Drawing	EC	ME	ME	2	4	0	4
7	17EC1ICBEE	Basic Electronics Engg.	EC	ECE	ECE	4	0	0	4
8	17CV1ICEVS	Environmental Studies	HSS	Civil	Civil	2	0	0	2
9	17HS1IMBCP	Business Communication and Presentation skills *	HSS	HSS	HSS	2	-	-	Pass Grade
									25

BS: Basic Science, EC: Engineering Core, HSS: Humanities and Social Sciences, 1hour Lecture (L) = 1 credit, 2hours Practical=1credit, 2 hours Tutorial (T) =1 credit, 1 hour Instruction (I) =1 credit.

Students should pass \*Mandatory Audit course (non credit) before the completion of IV Semester.



# DAYANANDA SAGAR COLLEGE OF ENGINEERING

Accredited by National Assessment & Accreditation Council (NAAC) with 'A' Grade

(An Autonomous Institute Affiliated to VTU, Belagavi)

Shavige Malleshwara Hills, Kumaraswamy Layout, Bengaluru-560078

## SCHEME 2017-18

### II SEMESTER B.E

(Common to all branches)

### CHEMISTRY GROUP

Sl. No.	Course Code	Course	Course Type	Teaching Department	Board	Hours/week			Total Credits
						L	P	T/I	
1	17MA2ICMAT	Engineering Maths-I	BS	Maths	BS	4	0	0	4
2	17CH2ICCHY	Engineering Chemistry	BS	CHY	BS	4	0	0	4
3	17CH2ILCHY	Engineering Chemistry Lab	BS	CHY	BS	0	2	1	2
4	17CS2ICPIC	Programming in C	EC	CSE	CSE	3	0	0	3
5	17CS2ILPIC	Computer Programming Lab	EC	CSE	CSE	0	2	1	2
6	17ME2ICCED	Computer Aided Engineering Drawing	EC	ME	ME	2	4	0	4
7	17EC2ICBEE	Basic Electronics Engg.	EC	ECE	ECE	4	0	0	4
8	17CV2ICEVS	Environmental Studies	HSS	Civil	Civil	2	0	0	2
9	17HS2IMBCP	Business Communication and Presentation skills *	HSS	HSS	HSS	2	-	-	Pass Grade
									25

BS: Basic Science, EC: Engineering Core, HSS: Humanities and Social Sciences, 1hour Lecture (L) = 1 credit, 2hours Practical=1credit, 2 hours Tutorial (T) =1 credit, 1 hour Instruction (I) =1 credit.

Students should pass \*Mandatory Audit course (non credit) before the completion of IV Semester.