



# K. S. SCHOOL OF ENGINEERING AND MANAGEMENT

Department of Electronics and Communication Engineering

Date: 18/08/2023

## CIRCULAR

### Elective subject Preferences for ODD semester September-Jan 2023-2024

All the students of VI semester are hereby informed to provide the elective subject preferences for upcoming VII semester in the Google sheet on or before 31<sup>st</sup> August 2023.

A separate Google form will be shared for both open elective and Professional elective subjects after introduction class.

  
Coordinator

  
HOD, ECE

**Professor & Head**

Dept. of Electronics & Communication Engineering  
K.S. School of Engineering & Management  
Bangalore - 560 109.

Enclosed:

List of Elective subjects from VTU



## K. S. SCHOOL OF ENGINEERING AND MANAGEMENT - 560 062

### CIRCULAR

**Date: 02/08/2023**


All the students are hereby informed that following are the open elective course offered by the departments for the semester 2023-24 Odd semester.

Department	Course offered		Faculty name
	Subject code	Subject name	
Department of Civil Engineering	18CV753	Environmental protection and management.	Dr Rashmi H R
Department of Mechanical Engineering	18ME751	Energy and Environment	Mr Parashuram A K
Department of Computer science	18CS752	Phython application programming	Mrs. Jayasubha J Mrs. Nagaveni B Nimbal Mrs. Nita Meshram
Department of Electronics and communication	18EC751	Communication theory	Mrs Bhargawi vijendra sangam

Students are directed to register for anyone of the above electives other than offered from this parent department. The registration is to be done on or before 26 August 2023 in the parent department.

Syllabus is attached for your further information.

CC: Department of Civil Engineering  
Department of Mechanical Engineering  
Department of Computer science  
Department of Electronics and communication

  
**Principal**  
Dr. K. RAMA NARASIMHA  
Principal/Director  
K S School of Engineering and Management  
Bengaluru - 560 109

**B. E. CIVIL ENGINEERING**  
**Choice Based Credit System (CBCS) and Outcome Based Education (OBE)**  
**SEMESTER - VII**

**ENVIRONMENTAL PROTECTION AND MANAGEMENT**

Course Code	<b>18CV753</b>	CIE Marks	40
Teaching Hours/Week(L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

**Course Learning Objectives:** This course will enable students to gain knowledge in Environmental protection and Management systems

**Module -1**

**Environmental Management Standards:** Unique Characteristics of Environmental Problems - Systems approach to Corporate environmental management - Classification of Environmental Impact Reduction Efforts - Business Charter for Sustainable Production and Consumption - Tools, Business strategy drivers and Barriers - Evolution of Environmental Stewardship. Environmental Management Principles - National policies on environment, abatement of pollution and conservation of resources - Charter on Corporate responsibility for Environmental protection.

**Module -2**

**Environmental Management Objectives:** Environmental quality objectives – Rationale of Environmental standards: Concentration and Mass standards, Effluent and stream standards, Emission and ambient standards, Minimum national standards, environmental performance evaluation: Indicators, benchmarking. Pollution control Vs Pollution Prevention - Opportunities and Barriers – Cleaner production and Clean technology, closing the loops, zero discharge technologies.

**Module -3**

**Environmental Management System:** EMAS, ISO 14000 - EMS as per ISO 14001– benefits and barriers of EMS – Concept of continual improvement and pollution prevention - environmental policy – initial environmental review – environmental aspect and impact analysis – legal and other requirements- objectives and targets – environmental management programs – structure and responsibility – training awareness and competence- communication – documentation and document control – operational control – monitoring and measurement – management review.

**Module -4**

**Environmental Audit:** Environmental management system audits as per ISO 19011- – Roles and qualifications of auditors - Environmental performance indicators and their evaluation – Non conformance – Corrective and preventive actions -compliance audits – waste audits and waste minimization planning – Environmental statement (form V) - Due diligence audit.

**Module -5**

**Applications:** Applications of EMS, Waste Audits and Pollution Prevention Control: Textile, Sugar, Pulp & Paper, Electroplating, Tanning industry. Hazardous Wastes - Classification, characteristics Treatment and Disposal Methods, Transboundary movement, disposal.

**Course outcomes:** After studying this course, students will be able to:

1. Appreciate the elements of Corporate Environmental Management systems complying to international environmental management system standards.
2. Lead pollution prevention assessment team and implement waste minimization options.
3. Develop, Implement, maintain and Audit Environmental Management systems for Organizations.

**Question paper pattern:**

- The question paper will have ten full questions carrying equal marks.
- Each full question will be for 20 marks.
- There will be two full questions (with a maximum of four sub- questions) from each module.
- Each full question will have sub- question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module.

**Reference Books:**

1. Christopher Sheldon and Mark Yoxon, "Installing Environmental management Systems – a step by step guide" Earthscan Publications Ltd, London, 1999.
2. ISO 14001/14004: Environmental management systems – Requirements and Guidelines – International

Organisation for Standardisation, 2004

3. ISO 19011: 2002, "Guidelines for quality and/or Environmental Management System auditing, Bureau of Indian Standards, New Delhi, 2002
4. Paul L Bishop „Pollution Prevention: Fundamentals and Practice, McGraw- Hill International, Boston, 2000.
5. Environmental Management Systems: An Implementation Guide for Small and Medium-Sized Organizations, Second Edition, NSF International, Ann Arbor, Michigan, January 2001.



**B. E. MECHANICAL ENGINEERING**  
**Choice Based Credit System (CBCS) and Outcome Based Education (OBE)**

Open Elective-B (Semester VII)

**ENERGY AND ENVIRONMENT**

Course Code	<b>18ME751</b>	CIE Marks	40
Teaching Hours / Week (L:T:P)	3:0:0	SEE Marks	60
Credits	03	Exam Hours	03

**Course Learning Objectives:**

- To understand the fundamentals of energy sources, energy use, energy efficiency, and resulting environmental implications of various energy supplies.
- To introduce various aspects of environmental pollution and its control.
- To understand the causes and remedies related to social issues like global warming, ozone layer depletion, climate change etc.
- To introduce various acts related to prevention and control of pollution of water and air, forest protection act, wild life protection act etc.

**Module-1**

Basic Introduction to Energy: Energy and power, forms of energy, primary energy sources, energy flows, world energy production and consumption, Key energy trends in India: Demand, Electricity, Access to modern energy, Energy production and trade, Factors affecting India's energy development: Economy and demographics Policy and institutional framework, Energy prices and affordability, Social and environmental aspects, Investment.

**Module-2**

Energy storage systems: Thermal energy storage methods, Energy saving, Thermal energy storage systems  
 Energy Management: Principles of Energy Management, Energy demand estimation, Energy pricing  
 Energy Audit: Purpose, Methodology with respect to process Industries, Characteristic method employed in *Certain Energy Intensive Industries*

**Module-3**

Environment: Introduction, Multidisciplinary nature of environmental studies- Definition, scope and importance, Need for public awareness.  
 Ecosystem: Concept, Energy flow, Structure and function of an ecosystem. Food chains, food webs and ecological pyramids, Forest ecosystem, Grassland ecosystem, Desert ecosystem and Aquatic ecosystems, Ecological succession.

**Module-4**

Environmental Pollution: Definition, Cause, effects and control measures of - Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution and Nuclear hazards, Solid waste Management, Disaster management Role of an individual in prevention of pollution, Pollution case studies.

**Module-5**

Social Issues and the Environment: Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies. Wasteland reclamation, Consumerism and waste products, Environment Protection Act, Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation.

**Group assignments:**

Assignments related to e-waste management; Municipal solid waste management; Air pollution control systems; Water treatment systems; Wastewater treatment plants; Solar heating systems; Solar power plants; Thermal power plants; Hydroelectric power plants; Biofuels; Environmental status assessments; Energy status assessments etc.

**Course Outcomes:** At the end of the course, the student will be able to:

- There will be 2 full questions (with a maximum of four sub questions) from each module.
- Each full question will have sub questions covering all the topics under a module.
- The students will have to answer 5 full questions, selecting one full question from each module.

**Text Books:**

1. Charles R. Severance, "**Python for Everybody: Exploring Data Using Python 3**", 1<sup>st</sup> Edition, CreateSpace Independent Publishing Platform, 2016. ([http://do1.dr-chuck.com/pythonlearn/EN\\_us/pythonlearn.pdf](http://do1.dr-chuck.com/pythonlearn/EN_us/pythonlearn.pdf))
2. Allen B. Downey, "**Think Python: How to Think Like a Computer Scientist**", 2<sup>nd</sup> Edition, Green Tea Press, 2015. (<http://greenteapress.com/thinkpython2/thinkpython2.pdf>) (Download pdf files from the above links)

**Reference Books:**

1. Charles Dierbach, "**Introduction to Computer Science Using Python**", 1<sup>st</sup> Edition, Wiley India Pvt Ltd, 2015. ISBN-13: 978-8126556014
2. Gowrishankar S, Veena A, "**Introduction to Python Programming**", 1<sup>st</sup> Edition, CRC Press/Taylor & Francis, 2018. ISBN-13: 978-0815394372
3. Mark Lutz, "**Programming Python**", 4<sup>th</sup> Edition, O'Reilly Media, 2011. ISBN-13: 978-9350232873
4. Roberto Tamassia, Michael H Goldwasser, Michael T Goodrich, "**Data Structures and Algorithms in Python**", 1<sup>st</sup> Edition, Wiley India Pvt Ltd, 2016. ISBN-13: 978-8126562176
5. Reema Thareja, "**Python Programming Using Problem Solving Approach**", Oxford university press, 2017. ISBN-13: 978-0199480173

**COMMUNICATION THEORY**  
**VII SEMESTER – Open Elective-B**  
**[As per Choice Based Credit System (CBCS) scheme]**

Course Code	18EC751	CIE Marks	40
Number of Lecture Hours/Week (L:T:P)	03	SEE Marks	60
CREDITS	03	Exam Hours	03

**Course objectives:** This course will enable students to:

- Describe essential elements of an electronic communications.
- Understand Amplitude, Frequency & Phase modulations, and Amplitude demodulation.
- Explain the basics of sampling and quantization.
- Understand the various digital modulation schemes.
- The concepts of wireless communication.

**Module -1**

**Introduction to Electronic Communications:** Historical perspective, Electromagnetic frequency spectrum, signal and its representation, Elements of electronic communications system, primary communication resources, signal transmission concepts, Analog and digital transmission, Modulation, Concept of frequency translation. Signal radiation and propagation (**TEXT 1: 1.1 to 1.10**)

**Module -2**

**Noise:** Classification and source of noise (**TEXT1:3.1**)

**Amplitude Modulation Techniques:** Types of analog modulation, Principle of amplitude modulation, AM power distribution, Limitations of AM, (**TEXT 1: 4.1,4.2, 4.4, 4.6**)

**Angle Modulation Techniques:** Principles of Angle modulation, Theory of FM-basic Concepts, Theory of phase modulation (**TEXT1: 5.1,5.2, 5.5**)

**Analog Transmission and Reception:** AM Radio transmitters, AM Radio Receivers (**TEXT1:6.1,6.2**)

**Module -3**

**Sampling Theorem and pulse Modulation Techniques:** Digital Versus analog Transmissions, Sampling Theorem, Classification of pulse modulation techniques, PAM, PWM, PPM, PCM, Quantization of signals (**TEXT 1: 7.1 to 7.8**)

**Module -4**

**Digital Modulation Techniques:** Types of digital Modulation, ASK,FSK,PSK,QPSK (**TEXT 1: 9.1 to 9.5**)

**Source and Channel Coding:** Objective of source coding, source coding technique, Shannon's source coding theorem, need of channel coding, Channel coding theorem, error control and coding (**TEXT 1: 11.1 to 11.3, 11.8, 11.9,11.12**)

**Module -5**

**Evolution of wireless communication systems:** Brief History of wireless communications, Advantages of wireless communication, disadvantages of wireless communications, wireless network generations, Comparison of wireless systems, Evolution of next-generation networks, Applications of wireless communication(**TEXT 2: 1.1 to 1.7**)

**Principles of Cellular Communications:** Cellular terminology, Cell structure and Cluster, Frequency reuse concept, Cluster size and system capacity, Method of locating cochannel cells, Frequency reuse distance(**TEXT 2: 4.1 to 4.7**)

**Course Outcomes:** At the end of the course, students will be able:

- Describe operation of communication systems.
- Understand the techniques of Amplitude and Angle modulation.
- Understand the concept of sampling and quantization.
- Understand the concepts of different digital modulation techniques.
- Describe the principles of wireless communications system.

**Question paper pattern:**

- Examination will be conducted for 100 marks with question paper containing 10 full questions, each of 20 marks.
- Each full question can have a maximum of 4 sub questions.
- There will be 2 full questions from each module covering all the topics of the module.
- Students will have to answer 5 full questions, selecting one full question from each module.

**Text Books:**

1. Analog and Digital Communications by T L Singal, McGraw Hill Education (India) Private Limited.
2. Wireless Communications by T L Singal, McGraw Hill Education (India) Private Limited.

**Reference Books:**

1. **Modern digital and analog Communication systems** B. P. Lathi, Oxford University Press., 4th ed, 2010,
2. **Communication Systems: Analog and Digital**, R.P.Singh and S.Sapre: TMH 2nd edition, 2007
3. **Introduction to wireless telecommunications systems and networks** by Gray J Mullett, Cengage learning.



# K S School of Engineering and Management

Department of Electronics and Communication Engineering

## Open Elective list

List of ECE students opted open elective offered from Dept. of Civil Engineering

Subject with code: 18CV753-Environmental Protection and Management(Open Elective-B)

Sl.No	Name of the student	USN	Contact No.
1	Mohammed Junaid M Guddad	1KG19EC061	7338644452
2	A Harshath	1KG20EC001	9392655068
3	A. Yuvasree	1KG20EC002	8341356642
4	Adusumalli Rohith	1KG20EC003	9573721563
5	Akshatha.S	1KG20EC004	7204378803
6	Athish Naveen	1KG20EC005	7406433565
7	Chaitra L	1KG20EC006	7892524925
8	Chandana R	1KG20EC007	8660642156
9	Dhanya Deepika	1KG20EC008	7995481006
10	G Neeraj	1KG20EC010	6309471245
11	Pooja Gudivada	1KG20EC011	6303125962
12	G Jyothiswar Reddy	1KG20EC012	9347338060
13	Gudi.Bharathkumar	1KG20EC013	6300973201
14	K.Gowtham	1KG20EC014	9381132067
15	K Jaswanth Chowdary	1KG20EC015	9347889339
16	Kishore Kumar M	1KG20EC016	9360906516
17	Koushik	1KG20EC017	6363514910
18	Kuche Raviteja	1KG20EC018	9182920622
19	M B Hemanth	1KG20EC019	9242401965
20	M Lokesh	1KG20EC020	9345491405
21	Makkena Hemanth	1KG20EC021	9502740830
22	Malepati Kaivalya	1KG20EC022	9154380288
23	Mannam Vandana	1KG20EC023	9535645252
24	N S Banuprasad	1KG20EC024	8903045583
25	Narra Bhaskar Naidu	1KG20EC025	9391601206
26	Narra Siri	1KG20EC026	7013644471
27	Neha Kumari . S	1KG20EC027	7275015752
28	Nishanth N	1KG20EC028	7892398842
29	Nithin G N	1KG20EC029	8123510112
30	P Haritha	1KG20EC030	9030203517
31	Pooja R	1KG20EC031	9113051430
32	Pothugunta Sai Kethan Chowdary	1KG20EC032	8639590409
33	Punith P	1KG20EC033	8197389889
34	R Parthiban	1KG20EC034	7406024648
35	Raghavendra C	1KG20EC035	9380396663
36	Rakshitha M	1KG20EC036	6363962749
37	Sachin.R	1KG20EC037	7483657379
38	Sadhana Hd	1KG20EC038	9686532697
39	Saliseemala Uma Chowdary	1KG20EC039	6302373732
40	Saliseemala Usha Chowdary	1KG20EC040	9390901895

42	Suprith R	1KG20EC042	8310199242
43	Tanuja N	1KG20EC043	7204777967
43	Tejashree M	1KG20EC044	8951874952
44	Ujwala H S	1KG20EC045	7411444306
45	Uma.C	1KG20EC046	8884290057
46	V Sasidhar	1KG20EC047	8341671736
47	Yashaswini R	1KG20EC048	9663110823
48	Nishanth Gowda M	1KG21EC400	8123073468
49	Swamy M	1KG21EC401	8217038475



Signature of Coordinator



HOD

**Professor & Head**

Dept. of Electronics & Communication Engineering  
K.S. School of Engineering & Management  
Bangalore - 560 109.

# K S School of Engineering and Management

## Department of Electronics and Communication Engineering

### Open Elective list

**List of ECE students opted Professional elective offered from Dept. of ECE**  
**Subject with code: 18EC732-Satellite Communication(Professional Elective-2)**

Sl.No	Name of the student	USN	Contact No.
1	Mohammed Junaid M Guddad	1KG19EC061	7338644452
2	A Harshath	1KG20EC001	9392655068
3	A. Yuvasree	1KG20EC002	8341356642
4	Adusumalli Rohith	1KG20EC003	9573721563
5	Akshatha.S	1KG20EC004	7204378803
6	Athish Naveen	1KG20EC005	7406433565
7	Chaitra L	1KG20EC006	7892524925
8	Chandana R	1KG20EC007	8660642156
9	Dhanya Deepika	1KG20EC008	7995481006
10	G Neeraj	1KG20EC010	6309471245
11	Pooja Gudivada	1KG20EC011	6303125962
12	G Jyothiswar Reddy	1KG20EC012	9347338060
13	Gudi.Bharathkumar	1KG20EC013	6300973201
14	K.Gowtham	1KG20EC014	9381132067
15	K Jaswanth Chowdary	1KG20EC015	9347889339
16	Kishore Kumar M	1KG20EC016	9360906516
17	Koushik	1KG20EC017	6363514910
18	Kuche Raviteja	1KG20EC018	9182920622
19	M B Hemanth	1KG20EC019	9242401965
20	M Lokesh	1KG20EC020	9345491405
21	Makkena Hemanth	1KG20EC021	9502740830
22	Malepati Kaivalya	1KG20EC022	9154380288
23	Mannam Vandana	1KG20EC023	9535645252
24	N S Banuprasad	1KG20EC024	8903045583
25	Narra Bhaskar Naidu	1KG20EC025	9391601206
26	Narra Siri	1KG20EC026	7013644471
27	Neha Kumari . S	1KG20EC027	7275015752
28	Nishanth N	1KG20EC028	7892398842
29	Nithin G N	1KG20EC029	8123510112
30	P Haritha	1KG20EC030	9030203517
31	Pooja R	1KG20EC031	9113051430
32	Pothugunta Sai Kethan Chowdary	1KG20EC032	8639590409
33	Punith P	1KG20EC033	8197389889
34	R Parthiban	1KG20EC034	7406024648
35	Raghavendra C	1KG20EC035	9380396663
36	Rakshitha M	1KG20EC036	6363962749
37	Sachin.R	1KG20EC037	7483657379
38	Sadhana Hd	1KG20EC038	9686532697
39	Saliseemala Uma Chowdary	1KG20EC039	6302373732
40	Saliseemala Usha Chowdary	1KG20EC040	9390901895



	Suprith R	1KG20EC042	8310199242
	Tanuja N	1KG20EC043	7204777967
3	Tejashree M	1KG20EC044	8951874952
44	Ujwala H S	1KG20EC045	7411444306
45	Uma.C	1KG20EC046	8884290057
46	V Sasidhar	1KG20EC047	8341671736
47	Yashaswini R	1KG20EC048	9663110823
48	Nishanth Gowda M	1KG21EC400	8123073468
49	Swamy M	1KG21EC401	8217038475

  
Signature of Coordinator

  
HOD  
**Professor & Head**  
Dept. of Electronics & Communication Engineering  
K.S. School of Engineering & Management  
Bangalore - 560 109.



# K S School of Engineering and Management

Department of Electronics and Communication Engineering


Open Elective list

List of ECE students opted Professional elective offered from Dept. of ECE

Subject with code: 18EC743-Multimedia Communication(Professional Elective-3)

Sl.No	Name of the student	USN	Contact No.
1	Mohammed Junaid M Guddad	1KG19EC061	7338644452
2	A Harshath	1KG20EC001	9392655068
3	A. Yuvasree	1KG20EC002	8341356642
4	Adusumalli Rohith	1KG20EC003	9573721563
5	Akshatha.S	1KG20EC004	7204378803
6	Athish Naveen	1KG20EC005	7406433565
7	Chaitra L	1KG20EC006	7892524925
8	Chandana R	1KG20EC007	8660642156
9	Dhanya Deepika	1KG20EC008	7995481006
10	G Neeraj	1KG20EC010	6309471245
11	Pooja Gudivada	1KG20EC011	6303125962
12	G Jyothiswar Reddy	1KG20EC012	9347338060
13	Gudi.Bharathkumar	1KG20EC013	6300973201
14	K.Gowtham	1KG20EC014	9381132067
15	K Jaswanth Chowdary	1KG20EC015	9347889339
16	Kishore Kumar M	1KG20EC016	9360906516
17	Koushik	1KG20EC017	6363514910
18	Kuche Raviteja	1KG20EC018	9182920622
19	M B Hemanth	1KG20EC019	9242401965
20	M Lokesh	1KG20EC020	9345491405
21	Makkena Hemanth	1KG20EC021	9502740830
22	Malepati Kaivalya	1KG20EC022	9154380288
23	Mannam Vandana	1KG20EC023	9535645252
24	N S Banuprasad	1KG20EC024	8903045583
25	Narra Bhaskar Naidu	1KG20EC025	9391601206
26	Narra Siri	1KG20EC026	7013644471
27	Neha Kumari . S	1KG20EC027	7275015752
28	Nishanth N	1KG20EC028	7892398842
29	Nithin G N	1KG20EC029	8123510112
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40	Saliseemala Usha Chowdary	1KG20EC040	9390901895

41	Suprith R	1KG20EC042	8310199242
42	Tanuja N	1KG20EC043	7204777967
43	Tejashree M	1KG20EC044	8951874952
44	Ujwala H S	1KG20EC045	7411444306
45	Uma.C	1KG20EC046	8884290057
46	V Sasidhar	1KG20EC047	8341671736
47	Yashaswini R	1KG20EC048	9663110823
48	Nishanth Gowda M	1KG21EC400	8123073468
49	Swamy M	1KG21EC401	8217038475

  
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