



Estd. 1962
NAAC 'A' Grade

SHIVAJI UNIVERSITY, KOLHAPUR-416 004. MAHARASHTRA

PHONE : EPABX-2609000 website- www.unishivaji.ac.in

FAX 0091-0231-2691533 & 0091-0231-2692333 – BOS - 2609094

शिवाजी विद्यापीठ, कोल्हापूर – 416004.

दुरध्वनी (ईपीएबीएक्स) २६०९०००० (अभ्यास मंडळे विभाग— २६०९०९४)

फॅक्स : ००९१-०२३१-२६९१५३३ व २६९२३३३.e-mail:bos@unishivaji.ac.in

SU/BOS/Science & Technology / No 00699 Date : 24 MAR 2022

To,

The Principals,

Smt. Kasutrbai Walchand College,

Sangli.

Subject: Regarding minor changes in the **M.Sc.Embedded Technology** under the Faculty of Science & Technology.

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the Hon'ble Vice-Chancellor have accepted and granted approval to the minor changes in the **M.Sc.Embedded Technology** as per enclosed under the Faculty of Science and Technology.

These minor changes will be implemented from the academic year of 2021-2022 onwards.

You are therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Yours faithfully,

Dy. Registrar

Copy to :-

- | | | | |
|---|---|----|-------------------------------|
| 1 | The Dean, Faculty of Science & Technology | 8 | Appointment Section |
| 2 | The Chairman, Respective BOS | 9 | Centre for Distance Education |
| 3 | Exam Section | 10 | Computer Centre |
| 4 | Eligibility Section | 11 | Affiliation Section (U.G.) |
| 5 | B.Sc/M.Sc Section | 12 | Affiliation Section (P.G.) |
| 6 | O.E. II Section | 13 | P.G.Admission Section |
| 7 | O.E. III Section | 14 | P.G.Seminar Section |

M.Sc. Embedded Technology

1. Title of the Course: M.Sc. Embedded Technology

2. Introduction:

M.Sc. Embedded Technology, an innovative programme, is introduced in **Smt. Kasturbai Walchand College of Arts and Science Sangli** from June 2021 and opened the doors of ubiquitous technology knowledge. It is also proposed to disseminate knowledge of the subject from fundamental concepts to State-of- Art technologies. Indeed, it helps to keep pace with global requirements. With the view to provide exposure to the recent technologies of various sectors of the Electronics and to empower the students to make them competent for industrial needs, R & D sectors and self-employment the curriculum is framed. Indeed, the curriculum encompasses knowledge of Embedded System and Instrumentation, Analog and Mixed signal Based SoC design, Wireless Sensor Network, Internet of Things and VLSI design and technologies. Therefore, the students may have better job opportunities. The course is of interdisciplinary relevance. Incorporation of practical examples and case studies to take students on a journey from microcontroller and AMS devices through to real-world applications of technology. The course helps to build your own technical skills in embedded systems, the IoT and AI, as well as enable you to bring this to life. The Choice Based Credit System (CBCS) is implemented for this course.

3. Objectives of the course:

Following are major objectives of the course.

- To provide exposure to the students to the recent technologies.
- To provide the knowledge of design and implementation of embedded systems for dedicated applications.
- To inculcate awareness among the student to perform the projects of industrial standards, which could also, ensures the interdisciplinary approach.
- To empower the students to cater the needs of industrial sectors. It is also attempted to expose the students to the research activities and to inculcate the research awareness.

- To expose the students to the industrial environment, on job training and internship may be provided
- To expose the students to the facets of real time systems

4) Advantages of the Course:

M.Sc. Embedded Technology is the subject, which ensures wide application potential in diverse sectors. Along with the basic sciences, it bears the knowledge of recent technologies. Therefore, it depicts the tremendous opportunities in the electronic industrial sectors. It ensures well confluence of Science and Technology. Therefore, the course helps to achieve all round development. Moreover, the students can also opt for education field for their career.

5) Eligibility :

- B. Sc. with Electronics subject at Principal / Interdisciplinary /Allied/ Applied level.
- B. Sc. with Electronics subject at Subsidiary level.
- B.Sc. with Computer Science/ B.Sc. Entire Computer Science(BCS)

6) Intake Capacity : 20

7) Duration: 2 Years – 4 Semesters

8) Fee Structure:

This is non-grantable course. Therefore, fee structure is as per Rules and Regulations of Shivaji University, Kolhapur

9) The Choice Based Credit System (CBCS):

Total Credit points : 96

Total Marks : 2400

Sr No.	Semester	Credits for Theory	Credits for Practical	Total Credits
1.	I	16	8	24
2.	II	16	8	24
3.	III	16	8	24
4.	IV	16	8	24
Total		64	32	96

10) Scheme of Examination :

A. Theory Examination :

- i) There shall be 100 marks for each course (paper). For each course 80:20 pattern shall be applicable, wherein 80 marks shall be for University Assessment (UA) and 20 marks for internal assessment (IA).
- ii) There shall be separate passing for theory as well as internal examinations. Minimum 32 marks out of 80 required for passing UA and minimum 8 marks out of 20 required for passing
- iii) The total marks for each semester examination is shall be 600.

B. Internal Examination: Scheme of internal assessment :

- i) As per UGC guidelines there shall be continuous internal assessment for M.Sc. Programme. Internal Examination will be compulsory for all students. If a student fails/remains absent in internal Examination then he / she will have to clear the internal Examination in subsequent attempt/s.
- ii) ii) The internal examination of 20 Marks shall be conducted at the mid of the each semester. The nature of questions shall be MCQ / true / false /one sentence answer type question/ short answer type questions.

C. Practical Examination:

- i) The core course practical (CCPR) examination shall be conducted annually/ semester wise with individual heads of passing with minimum 40% marks.
- ii) The rules for practical examinations shall be as per respective BOS guidelines.

11. Standard of passing : As per M.Sc CBCS Guidelines .

12. Gradation Chart : As per M.Sc CBCS Guidelines

Class Chart : As per M.Sc CBCS Guidelines

13 . Rules and Regulations :Rules and regulations and their amendments for other PG programs are mandatory for this course.

14) Structure of the Course:

M. Sc. Part I Embedded Technology
(CBCS :Choice Based Credit System)

CGPA/ Non- CGPA	Sr No.	Course Code	Title of the course	Teaching Scheme		
				Lectures per week	Hours Per week	Credits
M.Sc.-I Semester -I						
CGPA	1.	CC101	Fundamentals of Embedded System Design	4	4	4
	2.	CC102	CMOS Analog Circuit Design	4	4	4
	3.	CC103	Advanced Digital Design with Verilog HDL	4	4	4
	4.	CC104	Advanced Microcontroller Based Embedded system Design	4	4	4
	5.	CCPR105	Practical Course	16	16	8
				Total		
Non- CGPA	1	AEC-106				2
M.Sc.-I Semester –II						
CGPA	1	CC201	Real Time Operating System	4	4	4
	2	CC202	Mixed Signal Based PSoC Design	4	4	4
	3	CC203	Embedded System Design with FPGA	4	4	4
	4	CC204	Device Drivers and Embedded System	4	4	4
	5	CCPR105	Practical Course	16	16	8
			Total			24
Non- CGPA	1	SEC-206	NPTEL/SWAYAM course of Equivalent Lectures			2

- CC : Core Course
- CCPR: Core Course Practical
- AEC : Ability Enhancement Course (Mandatory Non-CGPA compulsory)
- SEC : Skill Enhancement Course (Mandatory Non-CGPA compulsory)
- CCS : Core Course Specialization
- DSE : Discipline Specific Elective
- EC : Elective Course (Non-CGPA (SWAYAM NPTEL))
- GE-Generic Elective
- OE-Open Elective

M.Sc. Part II Embedded Technology (CBCS : Choice Based Credit System)

M.Sc.-II Semester -III						
CGPA	1.	CC301		4	4	4
	2.	CC302	Wireless Sensor Network	4	4	4
	3.	CC303	Programming with Python	4	4	4
	4.	DSE304	ARM Microcontroller and Embedded System Design	4	4	4
	5.	DSE304		4	4	4
	6.	CCPR305	Practical Course	16	16	8
			Total			24
Non- CGPA	1	AEC-306		2	2	2
	2	EC-307	NPTEL/SWAYAM course of Equivalent Lectures			2
M.Sc.-II Semester -IV						
CGPA	1	CC401		4	4	4
	2	CC402	Intelligent IoT System Design	4	4	4
	3	CC403	Smart Fusion Technology Based System Design	4	4	4
	4	DSE404		4	4	4
	5	DSE404	Artificial Intelligence & Machine Learning	4	4	4
	6	CCPR405	Project work	16	16	8
			Total			24
Non- CGPA	1	SEC-406				2
	2	GE-407				2
			Total Credits			96