

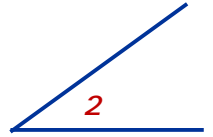
M.Tech (Executive) in Embedded Systems



School of Electronics Devi Ahilya University, Indore

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Embedded Systems

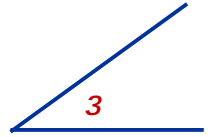
There are more computers on this planet than there are people, and most of these computers are single-chip microcontrollers that are the brains of an embedded system. Embedded systems are a ubiquitous component of our everyday lives. We interact with hundreds of tiny computers every day that are embedded into our houses, our cars, our bridges, our toys, and our work.

An embedded system combines mechanical, electrical, and chemical components along with a computer, hidden inside, to perform a single dedicated purpose. Embedded systems range from portable devices such as digital watches and MP3 players, to large stationary installations like traffic lights, factory controllers, and largely complex systems like hybrid vehicles, MRI, and avionics. Complexity varies from low, with a single microcontroller chip, to very high with multiple units, peripherals and networks mounted inside a large chassis or enclosure. As our world becomes more complex, so are the capabilities of the microcontrollers embedded into our devices. The world, therefore, needs a trained workforce to develop and manage products based on embedded microcontrollers.

The Need for Executive M.Tech (Executive) in Embedded Systems

Unfortunately, there is a gap between the demand and supply of Embedded Systems Engineers. Following are the chief reasons behind this gap:

- Undergraduate courses are too generic for addressing issues in this area in a focused manner.
- There are not many postgraduate courses that focus on hands on practice of Embedded Systems Design.
- Even if some generic postgraduate programs can be tailored to focus on Embedded System through electives, professionals working in the industry or Research and Development establishments do not have the luxury of taking two years off for pursuing higher studies.



To overcome these gaps M.Tech Programme is proposed with following objective

The overall educational objective of this course is to provide hands-on experiences of how embedded systems could be used to solve problems. This course is focused on giving you real world coding experience and hands on project work. You will learn how to implement software configuration management and develop embedded software applications. This will essentially facilitate knowledge creation in the field of Embedded Hardware, advanced microcontrollers such as ARM, embedded programming environment and its application.

With these factors in mind, the [School of Electronics, Devi Ahilya University, Indore](#) proposes a course M.Tech (Executive) in Embedded Systems that is flexible and can be self-paced which spans from 2 to 4 years. . This program is exclusively designed to cater to the needs of working individuals, wherein a candidate is expected to do 80 valid credit courses over a period of 2 to 4 years. The special feature of this programme is that the candidate can register for judicious mix of core courses (offered by department) and MOOC courses (offered on SWAYAM platform etc.) Typically the ratio of MOOC and core courses is 1:1 in every semester. **Candidates shall have to opt for a minimum of 12 credits in every semester.** The classes of core courses will be held over the weekends (or other timings suitable for working professionals) with each class of 3 hours duration and 2 hours laboratory.

The examination, evaluation and other related activities would be governed by Ordinance 14 of Devi Ahilya University.

Curriculum Structure (Tentative*)

Semester	Course Title	Course Type	Credits	Hours (L - T - P)
Semester I	Embedded Microcontrollers	Core	4	3 - 0 - 2
	Advanced Logic Design	Core	4	3 - 0 - 2
	C/C++/Java Programming	MOOC#	4	4 - 0 - 0
	Introduction to Embedded Systems	MOOC#	4	4 - 0 - 0
	Mini Project	---	4	---
	Comprehensive Viva Voce	---	4 (Virtual Credit)	---
	Total Credit (Semester - I)			24
Semester II	Advanced Embedded Microcontroller -ARM	Core	4	3 - 0 - 2
	Real Time Systems	Core	4	3 - 0 - 2
	Linux/ Operating Systems	MOOC#	4	4 - 0 - 0
	Verilog Programming/ FPGA Architecture	MOOC#	4	4 - 0 - 0
	Mini Project	---	4	---
	Comprehensive Viva Voce	---	4 (Virtual Credit)	---
	Total Credit (Semester - II)			24
Semester III	Digital Signal Processing	Core	4	3 - 0 - 2
	Python/iOS/ Android Programming	MOOC#	4	4 - 0 - 0
	Major Project Phase - I	---	12	---
	Comprehensive Viva Voce	---	4 (Virtual Credit)	---
	Total Credit (Semester - III)			24
Semester IV	VLSI Design Methodologies	Core	4	3 - 0 - 2
	Wireless Sensor Network/Wireless Comp. Network & IoT	MOOC#	4	4 - 0 - 0
	Major Project Phase - II	---	12	---
	Comprehensive Viva Voce	---	4 (Virtual Credit)	---
	Total Credit (Semester - IV)			24
TOTAL CREDITS			96	

* Scheme can be revised by departmental committee

List of MOOC courses can be revised by departmental committee periodically.

Candidates need to inform the course coordinator about the chosen course and can opt for a particular MOOC course only after approval from departmental committee.

Note: Above table is a schematic course scheme for a typical 2 year programme. However candidates can opt for courses in a flexible manner (keeping minimum 12 credits per semester) spread over 8 semester. Decision of permitted course rest with the departmental committee.

Eligibility Criteria and Admission Process

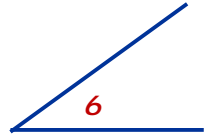
Duration	Min Duration: 2 Years	Max Duration: 4 Years												
Intake	15													
ADMISSION	Admission will be done on the merit basis by the Devi Ahilya University, Indore													
Eligibility	<ol style="list-style-type: none"> The candidate must have a minimum work experience of 2 years in industry and be employed at the time of applying. The candidates need to produce a copy of allotted PF number at the time of counseling. Candidates must have obtained BE/B Tech/MSc in relevant subject. 													
Selection Procedure	<p>Candidates will be admitted as per the merit developed on the basis of % of marks obtained in the following categories:</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Qualifying examination</th> <th>Written Test and/or Interview</th> <th>Service Experience*</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Max. Marks</td> <td>100</td> <td>80</td> <td>20</td> <td>200</td> </tr> </tbody> </table> <p>* Service experience - 2 marks per year limited to max. 20 marks.</p>				Category	Qualifying examination	Written Test and/or Interview	Service Experience*	Total	Max. Marks	100	80	20	200
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AGE LIMIT: As per the directives of Government of Madhya Pradesh, there is no upper age limit for admission in the programme.

Fee Structure for Batch 2019-21:

Semester	Academic Fee	Development & Maintenance Fee	Students' Services Fee		Examination Fee	Total (Rs.)	
			Boys	Girls		Boys	Girls
First	15000	12500	3300	3111	2500	33300	33111
Second	15000	12500	2911	2722	2500	32911	32722
Third	15000	12500	3300	3111	2500	33300	33111
Fourth	15000	12500	2911	2722	2500	32911	32722

- Caution money (Refundable) of Rs. 4000/- will be charged additionally in the first semester.
- Alumni Fee of Rs. 500/- will be charged extra in the first semester.
- If a student repeats a paper(s) in a semester, an additional fee of Rs.500/- per paper shall be payable.
- Candidates have to separately bear the fee for registering for MOOC courses.



- For NRI/ FN/ PIO Candidates, a fee of US\$ 3500 Per Annum shall be payable on yearly basis. They will have to pay a refundable deposit of US\$ 500 once at the time of admission.
- Hostel Fee and Central Library Fee will be extra.

About Devi Ahilya University

Devi Ahilya Vishwavidyalaya (DAVV), formerly University of Indore, is a premier University in Central India accredited with "A" grade by NAAC. It was established in 1964, by an Act of Legislature of Madhya Pradesh. DAVV is an affiliating State University whose jurisdiction includes seven tribal dominated districts of Indore division. It is catering to the educational needs on one hand to the most industrially developed district of MP, Indore and on the other hand to the tribal and rural backward districts of the State. The University serves around 2.5 lakhs students every year through well qualified human resources, with diversified course structure, inter-disciplinary research and value-based education.



It occupies highest priority in this University. There are twenty eight teaching departments offering undergraduate, post-graduate and research programs in sixteen Faculties. It is amongst the first few Universities in the country to introduce innovative and integrated courses in the area of science, engineering, technology, management, law and media. University has 270 affiliated colleges in addition to University teaching departments and centers. DAVV is also the pioneer University in starting the Self-supporting courses in the country. All Schools/Institutes have complete academic autonomy and flexibility. The University student enrolment, profile and admission process for various courses is transparent to all stakeholders and can be accessed at www.dauniv.ac.in.

The University provides and nurtures research environment for promoting high quality original research. It offers Ph.D. and M. Phil. Programmes in all the subjects. Most of the departments have research projects funded by various agencies like UGC, CSIR, DBT, ICAR, DST, ICSSR, MPCST, and others. All the departments / schools of studies are actively engaged in research, publish in national and international publications, undertake sponsored research projects and have collaborations with organizations of repute. The faculty members have received National / State awards, and fellowships for their contribution in teaching and research. Some of the notable awards are Marie Curie Award, Humboldt Fellowship, Commonwealth Fellowship, INSA-DFG, Dr. R.B. Ekbote Prize (DST-MAS), UGC Career Award, DBT Overseas Award, Fellowships and Senior memberships of IETE and IEEE, Fellowship of World society of Cellular and Molecular Biology, France, Dr. Shankar Dayal Sharma Srajan Samman, Rajiv Gandhi National Gyan Vigyan Moulik Pustak Lekhan Puraskar, Kailash Nath Katju Award and MPCST Researcher Award. University Teaching Departments have collaborations with International institutes of Hungary, USA, Russia, Belgium, Czech Republic, Canada and Taiwan to facilitate student – faculty exchange, training and collaborative research.

About School of Electronics

University Teaching Department of Electronics called "School of Electronics" was conceived and established in 1990 with the launch of M. Sc. (Electronics) programme. This course was a joint initiative of UGC & Ministry of Electronics & Information Technology (MietY), Govt. of India to train manpower in Electronics Science. School received generous funding under the initiative with matching contribution of State Govt. towards infrastructure and faculty positions. The specialization offered in M. Sc. (Electronics) Course is Embedded Systems. In 1993, the school started another course M.Sc. Electronics and Communication with Specialization in Wireless Communication. In 2002, the School started AICTE approved M. Tech Embedded systems course. In 2007, a new Full Time two Year M. Tech Spatial Information Technology (GeoInformatics) was Started (AICTE approved). In 2008, UGC Sponsored M. Tech. in Mobile Computing Technology was launched under Innovative Programs from UGC.

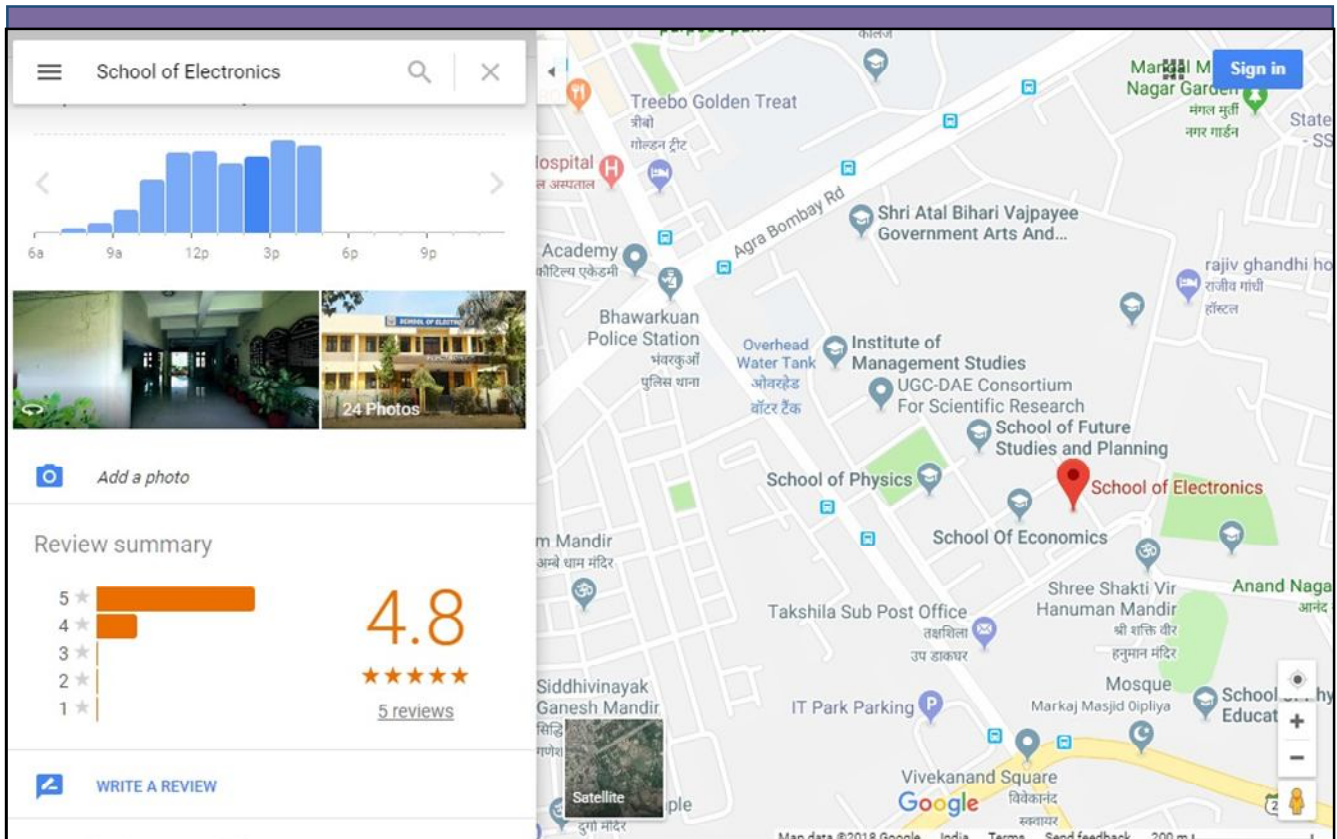


- Department received the status of UGC Supported Innovative Programme in 2008.
- Department of Electronics and IT (DietY) sanctioned two JRF position with funding of Rs 70 lakhs approx. in 2016 under Visvesvaraya PhD Scheme
- Adequate number of well qualified faculty members.
- Transparent evaluation mechanism with credit based grading system as per IIT System. Student may opt for **SWAYAM**

(MOOC) Courses under CBCS.

- Workshop/experts lectures organized regularly. Departmental library has 11000+ books.
- Laboratories are upgraded regularly. State of art Software and Hardware in Electronics Domain.
- Our alumni base is spread across the world with most of them employed with leading MNCs and research organization like ISRO, SAC, NIO, INTEL, Cisco, Samsung, ST Microelectronics, Wipro, Texas Instrument, TCS, Tata Elxsi, GE, Hughes, Infosys, ST Ericsson, Reliance Communication, Philips, IIT, Indore etc. to name a few. Many alumni are successful entrepreneurs too.
- Student mentorship is done by Alumni and teachers.





Contact,

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<https://www.google.com/maps/place/School+of+Electronics/@22.6902809,75.8675328,16>

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