

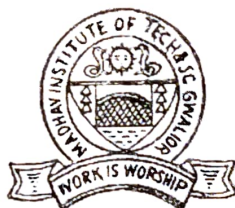
D.No. 684
24.10.2020

Board of Studies

Meeting held on

28-05-2020

Proceedings



Electrical Engineering Department

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV Bhopal, MP)

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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Agenda of the BoS

(Approved by the Academic Development Cell for all BoS Meetings Scheduled in May-June 2020)

Item 1:	To propose the tentative list of courses which the students can opt from NPTEL platform for <i>Seminar/Self Study Courses in III & V Semester (during 2020-2021)</i>
Item 2:	To propose the list and syllabi for all <i>Departmental Elective (DE) Courses of VII Semester</i> under the flexible curriculum along with their COs
Item 3:	To propose the list of Courses from SWAYAM/NPTEL/MOOC Platform to be offered in <i>online mode under DE category</i> for credit transfer in the <i>VII Semester</i>
Item 4:	To propose the Courses & Syllabi to be offered under <i>Open Category(OC) Courses</i> for VII semester students of other departments along with their COs
Item 5:	To propose the list of "Additional Courses" which can be opted for getting an (i) <i>Honours (for students of the host department)</i> (ii) <i>Minor Specialization (for students of other departments)</i> <i>[These will be completed through SWAYAM/NPTEL/MOOC based Platforms during V and VII semester]</i>
Item 6:	To propose the syllabi of <i>Mandatory Course (MC)</i> titled "Intellectual Property Rights" (IPR) of <i>VII semester</i> under the flexible curriculum along with their COs <i>[This will be prepared & recommended by Institution Level Committee/Academic Development Cell]</i>
Item 7:	To propose the Experiment list/ Lab manual for <i>Laboratory Courses</i> to be offered in <i>VII semester</i>
Item 8:	To explore and prepare the tentative list of <i>Departmental Elective (DE) Courses</i> (along with COs) for <i>VIII semester</i> <i>(run through SWAYAM/NPTEL/MOOC based platform)</i>
Item 9:	To explore and prepare the tentative list of courses to be offered under <i>Open Category(OC) Courses</i> for <i>VIII semester</i> students of other departments
Item 10:	New Scheme and syllabi of ME (ISD)
Item 11:	Any other matters

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR-5

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal, MP)

Electrical Engineering Department

Date: 28-05-2020

Minutes of Meeting Board of Studies

The Board of Studies (BoS) meeting of Electrical Engineering department was held Online on 28th May 2020 at 3:00 pm onwards. Following external members were invited in addition to the faculty members of the department:

1. **Dr. A.K. Sharma**, Prof. & Head, Electrical Engineering Department, JEC Jabalpur (**VC, RGPV nominee**)
2. **Dr. Mukhtiar Singh**, Professor, Department of Electrical Engineering, DTU Delhi (**Subject Expert**)
3. **Dr. D.K. Chaturvedi**, Professor, Electrical Engineering Department, DEI Agra, (**Subject Expert**)
4. **Er. R.K Mahapatra**, AGM, BHEL, Jhansi (**Industry Expert**)
5. **Er. Dileep Dixit**, DGM, NTPC, Delhi, (**Alumnus**)

Above mentioned External experts and the following internal members attended the meeting:

Dr. L. Srivastava	Dr. H. M. Dubey	Prof. Kuldeep Swarnkar	Prof. Nipun Gupta	Prof. Saurabh Kumar
Dr. M. Pandit	Dr. Shishir Dixit	Prof. Praveen Bansal	Prof. Rahul Sagwal	Prof. Shweta Kumari
Dr. A.K. Wadhvani	Prof. Rakesh Narvey	Prof. Vishal Chaudhary	Prof. G.K. Naveen Kumar	Prof. Aprajita Kumari
Dr. S. Wadhvani	Dr. Himmat Singh	Prof. Punjan Dohare	Prof. Bhavna Rathore	Prof. Manoj Kumar
Prof. Ashish Patra	Dr. Vijay Bhuria	Dr. Vikram	Prof. Shailendra Pratap	Prof. Tarun Shrivastava

Agenda-wise summary of the BoS meeting is as follows:

Item EE 1: To propose the tentative list of courses which the students can opt from NPTEL platform for *Seminar/ Self Study Courses in III & V Semester (during 2020-2021)*

Semester-III (130306)

S. No.	Name of the Course	Course Details		
		Duration	Start Date	End Date
1.	Python for Data Science, IITM	4 Weeks	July 20, 2020	Aug 14, 2020
2.	Fundamentals of Electronic Device Fabrication, IITM	4 Weeks	July 20, 2020	Aug 14, 2020
3.	Ethics in Engineering Practice, IIT KGP	8 Weeks	Aug 17, 2020	Oct 09, 2020
4.	Solar Photovoltaics Fundamentals, Technology and Applications, IITR	8 Weeks	July 20, 2020	Sept 11, 2020

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Electrical Engineering Department

Semester-V (130507)

S. No.	Name of the Course	Course Details		
		Duration	Start Date	End Date
1.	Selection of Nanomaterials for Energy Harvesting And Storage Application, IITR	4 Weeks	July 20, 2020	Aug 14, 2020
2.	Global Navigation Satellite Systems and Applications, IITR	4 Weeks	July 20, 2020	Aug 14, 2020
3.	C Programming and Assembly Language, IITM	4 Weeks	July 20, 2020	Aug 14, 2020
4.	Data Science for Engineers, IITM	8 Weeks	July 20, 2020	Sept 11, 2020

Note: Credit for opting a particular NPTEL course will be given only once during the tenure of B.Tech. program.

Item

EE 2: To propose the list and syllabi for all Departmental Elective (DE) Courses of VII Semester under the flexible curriculum along with their COs

For VII semester following four DEs courses are proposed:

Code	Name of DE-3 Course
130711	Electrical Drives
130712	Renewable Energy Systems
130713	IoT in Microgrid
130714	Intelligent Sensors and Instrumentation

Scheme of B.Tech. (Electrical Engg) VII Semester & VIII Semester under Flexible Curriculum was discussed and included in Annexure-I.

Syllabi for all Departmental Elective (DE3) courses to be offered in the VII Semesters under the flexible curriculum along with their COs were discussed and included in Annexure-II.

Item EE 3: To propose the list of Courses from SWAYAM/NPTEL/MOOC Platform to be offered in online mode under DE category for credit transfer in the VII Semester

NPTEL Offered Courses DE4

Code	Name of the course	Duration of the course	Course Registration		Exam. date
			Start Date	End date	
130751	Introduction to Smart Grid, IITR	8Weeks	July 20, 2020	Sep 11, 2020	27 Sep 2020
130752	Advances in UHV Transmission and Distribution, IISc Bangalore	8 Weeks	July 20, 2020	Sep 11, 2020	27 Sep 2020
130753	Electrical Distribution system Analysis IITR	8Weeks	July 20, 2020	Sep 11, 2020	27 Sep 2020
130754	Electrical Equipment and Machines: Finite Element Analysis, IITB	8Weeks	July 20, 2020	Sep 11, 2020	27 Sep 2020

Note: Credit for opting a particular NPTEL course will be given only once throughout the tenure of B.Tech. program.

Details of the Departmental Elective (DE4) through NPTEL courses are included in Annexure-III.

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Electrical Engineering Department

Item EE 4: To propose the Courses & Syllabi to be offered under *Open Category(OC)* Courses for VII semester students of other departments along with their COs

OC-2

S. No.	Course Code	Proposed OC course	Name of the Faculty
1	900205	Applications of Electrical Equipment & Motors	Dr. Vijay Bhuria

OC-3

S. No.	Course Code	Proposed OC course	Name of the Faculty
1	900216	IoT in Microgrid	Ms. Bhavna Rathore
2	900217	Electric Vehicles	Mr. G K Naveen Kumar

The Courses & Syllabi to be offered under Open Category (OC) Courses for VII semester students of other departments along with their COs were discussed and are included in Annexure-IV.

Item EE 5: To propose the list of "Additional Courses" which can be opted for getting an
 (i) *Honors (for students of the host department)*
 (ii) *Minor Specialization (for students of other departments)*

[These will be completed through SWAYAM/NPTEL/MOOC based Platforms during V and VII semester]

V Semester

List of Courses offered for Honors

Name of the course	Offered By	Course Duration	Course Details		
			Start Date	End Date	Exam Date
Introduction to Smart Grid	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
DC Microgrid and Control System	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
Technologies for Clean and Renewable Energy Production	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
Introduction to Robotics	IITM	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 18, 2020
Design of photovoltaic systems	IISc	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 18, 2020
Linear System Theory	IITM	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 17, 2020
Semiconductor Devices and Circuits	IISc	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 17, 2020

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Electrical Engineering Department

V Semester

List of Courses offered for Minor Specialization

Name of the course	Offered By	Course Duration	Course Details		
			Start Date	End Date	Exam Date
Technologies for Clean and Renewable Energy Production	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
Basic Electrical Circuits	IITM	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 18, 2020
Electrical Machines - I	IIT KGP	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 18, 2020
Power Electronics	IITD	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 18, 2020
Power system analysis	IIT KGP	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 18, 2020
Control systems	IITM	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 18, 2020
Linear System Theory	IITM	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 17, 2020

VII Semester

List of Courses offered for Honors

Name of the course	Offered By	Course Duration	Course Details		
			Start Date	End Date	Exam Date
Introduction to Smart Grid	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
DC Microgrid and Control System	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
Technologies for Clean and Renewable Energy Production	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
Introduction to Robotics	IITM	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 18, 2020
Design of photovoltaic systems	IISc	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 18, 2020
Linear System Theory	IITM	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 17, 2020
Semiconductor Devices and Circuits	IISc	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 17, 2020

Note: Credit for opting a particular NPTEL course will be given only once throughout the tenure of B.Tech. program.

List of Courses offered for Minor Specialization

Name of the course	Offered By	Course Duration	Course Details		
			Start Date	End Date	Exam Date
Introduction to Smart Grid	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
DC Microgrid and Control System	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
Electrical Distribution System Analysis	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
Power System Protection and Switchgear	IITR	8 Weeks	July 20, 2020	Sep 11, 2020	Sep 27, 2020
Computer Aided Power System Analysis	IITR	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 17, 2020
Design of photovoltaic systems	IISc	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 18, 2020
Fundamentals of Electrical Engineering	IIT KGP	12 Weeks	July 20, 2020	Oct 9, 2020	Oct 17, 2020

Note: Credit for opting a particular NPTEL course will be given only once during the tenure of B.Tech. program.

Details of courses through NPTEL for Honors and Minor Specialization are included in Annexure-V.

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Electrical Engineering Department

Item EE 6: To propose the syllabi of *Mandatory Course (MC)* titled "Intellectual Property Rights" (IPR) of *VII semester* under the flexible curriculum along with their COs.

The proposed Syllabi of Mandatory Course "Intellectual Property Rights" along with the COs as by Institution Level Committee/Academic Development Cell is included in Annexure-VI.

Item EE 7: To prepare and recommend the Experiment list/ Lab manual for Laboratory Courses to be offered in VII semester

The list of experiments for laboratory courses (i) **Control System** and (ii) **Electrical Drives** and to be offered in VII Semester are as below:

Control Systems Lab (DLC-6) - 130701	
S. No.	Objective of the Experiment
1	Introduction to MATLAB: control system toolbox.
2	Obtain the Operational Characteristics of real time Air Temperature Controller.
3	Obtain the operational characteristics of nonlinear element relay in a closed loop control system.
4	To find the error voltage generated for input DC voltages using potentiometer error detector.
5	To Plot the frequency domain characteristics of the lead lag process.
6	To design and analyse an electronic PID controller for a closed loop control system.
7	To improve the performance of the closed loop control system with PI controller.
8	To observe and analyse the plant dynamic response using process reaction curve method.
9	a) Plot step response of a given TF and system in state-space. Take different values of damping ratio ζ and natural undamped frequency ω_n . b) Plot ramp response of a given TF and system in state-space.
10	Plot step response and obtain the time response specifications for given 2nd order system.

Creative Problem Solving (DLC-8) Electrical Drives Lab - 130703	
S. No.	Objective of the Experiment
1	To perform speed Control of DC shunt motor using single phase Semi-converter
2	Perform the operation of single phase full wave controlled rectifier with DC motor load
3	Perform and analyze the Non-circulating current mode of three phase dual converter
4	To perform and analyze the Circulating current mode of three phase dual converter
5	To perform the V/f control of 3-phase Induction Motor using Voltage Source Inverter (VSI).
6	Perform and analyze the Open loop speed control of DC Motor using chopper in all four quadrants.
7	To operate and perform microcontroller (DSP) based VSI for speed control of 3-phase Induction Motor.
8	To perform Speed control of Induction Motor using single phase SCR based regulator
9	To perform Speed control of Three phase motor using Three phase SCR based regulator
10	Determination of performance and characteristic of single phase SCR full bridge inverter with R – load.

Lab manuals for above laboratory courses to be offered in VII Semester under the flexible curriculum were discussed & finalized. Details of Control System Lab are included in Annexure-VII and for Electrical Drives Lab in Annexure-VIII.

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Item To explore and prepare the tentative list of *Departmental Elective (DE)* Courses (along with COs)
 EE 8: for *VIII semester*
 (run through SWAYAM/NPTEL/MOOC based platform)

DE-5

NPTEL Offered Courses for Jan-April 2021 (Tentative)

Name of the course	Duration of the course	SME Name
Digital Signal Processing & its Applications (IITB)-New	12 Weeks	Prof V. M. Gadre
Computational Electromagnetics (IITM)-Rerun	12 Weeks	Prof. Uday Khankhoje
Advanced Electrical Networks (IITM)-New	12 Weeks	Prof. Shanti Pavan
Electronic Systems for Cancer Diagnosis (IISc)-Rerun	12 Weeks	Prof. Hardik Jeetendra Pandya

Note: Credit for opting a particular NPTEL course will be given only once throughout the tenure of B.Tech. program.

Item To explore and prepare the tentative list of courses to be offered under *Open Category(OC)*
 EE 9: Courses for *VIII semester* students of other departments **OC-4 & OC-5**
NPTEL Offered Courses for Jan-April 2021(Tentative)

OC-4

Name of the course	Duration of the course	SME Name
Road Map for Patent Creation (IIT KGP)-Rerun	8 Weeks	Prof. Gouri Ghargate
Introduction to Research (IITM)-Rerun	8 Weeks	Prof. Prathap Haridoss
Electronic Modules for Industrial Applications using Op-Amps (IISc)-Rerun	8 Weeks	Prof. Hardik Jeetendra Pandya
Fuzzy Logic & Neural Networks (IIT KGP)-Rerun	8 Weeks	Prof. Dilip Kumar Pratihar

OC-5

Name of the course	Duration of the course	SME Name
Modern Digital Communication Techniques (IIT KGP)-Rerun	12 Weeks	Prof. Suvra Sekhar Das
Digital IC Design (IITM)-Rerun	12 Weeks	Prof. Janakiraman
Principles of Communication Systems-I (IITK)-Rerun	12 Weeks	Prof. Aditya K. Jagannatham
Mathematical Methods and Techniques in Signal Processing (IISc)-Rerun	12 Weeks	Prof. Shayan Srinivasa Garani

Item New Scheme and syllabi of ME (ISD)
 EE 10: **Details of New Scheme and Syllabi of ME(ISD) are included in Annexure-IX.**

Item Any other matters
 EE 11: **Some Noteworthy Feedback/ Suggestions from Alumni and Action Taken/ Planned**

Students must study new technology and innovation in course:
 Under Flexible curriculum scheme students will be able to opt innovative courses from SWAYAM platform. Also the subjects like Renewable Energy Systems, IoT in Microgrid and Intelligent Sensors and Instrumentation are being introduced to expose our students to new technologies being adopted in real world.

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Electrical Engineering Department

More practical skills to be implemented rather than theory classes:

As per AICTE mandate, department is organizing Summer and Winter Internship Program twice in a year based on Software and hardware skills. In addition Finishing school (150 hrs) is also being organized for Pre-final and Final year students.

Training and industrial visits regularly:

In every semester, department has organized Industry visits to explore practical skills among students and faculty.

Labs must be updated:

All labs in the department are upgraded recently with latest equipments, machinery etc to provide hardware and software skills to students.

Project Funding should be done:

Department already awarded handsome projects from MODROBs, DST etc and other funding agencies. Innovative Research Scheme has also been implemented by the Institute to provide funding for research projects.

Books must be updated or online courses be available to keep the students in touch with the latest development:

Under Flexible Curriculum scheme, institute has already offered the provision to choose 'Honor' and 'Minor Specialization' using online platforms like SWAYAM/ NPTEL etc. Also, some of the Department Elective courses are being offered using online platform.

To establish centre of Excellence in the area like Smart Grid or Renewable Energy Systems:


Under CRS project (TEQIP-III) and DST-FIST project department is planning to establish Smart Renewable centre" (Project fund already allocated)


Undertake industrial projects and provide financial aid:


Department has introduced a new course "Industry Automation" for B.Tech. III year students. After completing this course, the students will be able to tackle the Industry Automation related problems successfully.


Prof. Aprijita Kumari


Prof. Shweta Kumari


Prof. Tarun Shrivastava


Prof. Saurabh Kumar


Prof. Rahul Sagwal


Prof. G.K. Naveen
Kumar


Prof. Manoj Kumar

Prof. Bhavna Rathore


Prof. Shailendra P. Singh


Prof. Nipun Gupta


Dr. Vikram


Prof. Punjan Dohare


Prof. Vishal Chaudhary



Prof. Praveen Bansal


Prof. Kuldeep Swarnkar


Dr. Vijay Bhuria


Dr. Himmat Singh

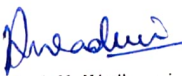

Prof. Rakesh Narvey


Dr. Shishir Dixit



Dr. H. M. Dubey



Prof. Ashish Patra


Dr. S. Wadhvani


Dr. A.K. Wadhvani


Dr. L. Srivastava


Dr. M. Pandit


DEAN (ACADEMICS)
M.I.T.S
GWALIOR