

COURSE TEMPLATE

1.	Department / Centre proposing the course	Committee set up by the Chairman Senate	
2.	Course Title (<i>< 45 characters</i>)	ENGINEERING VISUALISATION AND COMMUNICATION	
3.	L-T-P structure	0 - 0 - 4	
4.	Credits	2 . 0	
5.	Course number	MEP100	
6.	Status (<i>category for program</i>)	Engineering Core	

7.	Pre-requisites (<i>course no./title</i>)	None	
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8.	Status vis-à-vis other courses (<i>give course number/title</i>)		
8.1	Overlap with any UG/PG course of the Dept./Centre		
8.2	Overlap with any UG/PG course of other Dept./Centre		
8.3	Supercedes any existing course	MEL110	

9.	Not allowed for (<i>indicate program names</i>)		
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10.	Frequency of offering	☒ Every sem ☐ 1 st sem ☐ 2 nd sem ☐ Either sem	
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11.	Faculty who will teach the course As decided by the first year committee, could include S. Mukherjee, H. Hirani and S. V. Modak from Mech Dept.		
12.	Will the course require any visiting faculty?	NO	

13.	Course objective (<i>about 50 words</i>): Introduce methods to aid visualisation of of engineering objects and communicating the same to other professionals. This includes engineering drawings, CAD systems and tools for processing and presentation of time evolving systems in the form of animation		
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14.	Course contents (<i>about 100 words</i>) (<i>Include laboratory/design activities</i>): Free hand sketching of engineering objects and interpretation of drawings as a visualisation and communication tool. Creating 3D components through the use of a CAD package. Generation of drawings as per ISO standards from CAD package. Design of simple assemblies through theory of constraints, generation of assembly views from part drawings, animation of assemblies. Use of 3D models of rigid and soft systems in conjunction with physics engines for representation of time evolving system.		
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15. Lecture Outline *(with topics and number of lectures)*

Module no.	Topic	No. of hours
1	I	
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
COURSE TOTAL (14 times 'L')		0

16. Brief description of tutorial activities

NA

17. Brief description of laboratory activities

Module no.	Experiment description	No. of hours
1	Instructions for laboratories, 1 hr a week	14
2	Free hand sketching of isometric & orthographic views and interpretation of drawings.	9
3	Use of CAD packages for discrete component drawings	9
4	Dimensioning, sectioning and datum planes	6
5	Constraints and assembly drawings	6
6	Engineering animation including motion curves, coordinating multiple moving parts under joint-constraints and the notion and impact of lighting and camera.	9
7	Compositing and physics engines(gravity, collision, dynamics, fluid simulation)	3
8		
9		
10		
COURSE TOTAL (14 times 'P')		56

18. Suggested texts and reference materials

STYLE: Author name and initials, Title, Edition, Publisher, Year.

Warren Luzadder and Jon M. Duff, 2009, Fundamentals of Engineering Drawing with an Introduction to Interactive Computer Graphics for Design and Production, 11th Edition, PHI Learning.

The Essential Blender: Guide to 3D Creation with the Open Source Suite Blender, No Starch Press.

Antonio Siciliano, 2008, MATLAB: Data Analysis and Visualization, World Scientific Publishing Company.

MEP100 Class notes.

19. Resources required for the course *(itemized & student access requirements, if any)*

19.1	Software	3D CAD package with 5000 user licenses, Open source software including Blender, Bullet, Python, Online examination and assessment module
19.2	Hardware	100 CAD workstations, Data backup, high speed networked printer
19.3	Teaching aides (videos, etc.)	Will have to make some
19.4	Laboratory	Space to host 100 workstations
19.5	Equipment	Projector
19.6	Classroom infrastructure	450 capacity
19.7	Site visits	

20. Design content of the course *(Percent of student time with examples, if possible)*

20.1	Design-type problems	
20.2	Open-ended problems	
20.3	Project-type activity	10%
20.4	Open-ended laboratory work	20%
20.5	Others (please specify)	

Date:

(Signature of the Head of the Department)